



CONTRIBUTION, EXPLOITATION, AND MIGRATORY TIMING OF RETURNS OF
SCKEYE SALMON (Oncorhynchus nerka) STOCKS TO LYNN CANAL IN
1985 BASED ON ANALYSIS OF SCALE PATTERNS

By:

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ABSTRACT

Visual interpretation of scale circuli patterns from three sockeye salmon (*Oncorhynchus nerka*) escapements provided the basis for estimating commercial catch contributions in Southeastern Alaska commercial fishing Districts 115 and 112. The freshwater growth zone of the three stocks was the principal discriminatory characteristic. Chilkoot Lake exhibited the smallest freshwater growth zone, Chilkat Lake the largest, and the stock to Berners Bay and the Chilkat River Mainstem a zone intermediate in size. The minimum estimate of total run of sockeye salmon to Lynn Canal in 1985 was 447,291 fish, of which 302,541 (71.7%) were harvested: 304,006 in District 115 and 16,535 in District 112. The balance (126,750) escaped to spawn. The Chilkat Lake run contributed 206,314 fish of which 148,590 (72.0%) were harvested and 57,724 escaped to spawn. Chilkoot River contributed 224,799 fish, of which 155,773 (69.3%) were harvested and 69,026 escaped to spawn. Exploitation rates within freshwater age generally increased with ocean age and longer fish were exploited at a greater rate for both Chilkoot Lake and Chilkat Lake stocks. Mean length of Chilkat Lake fish was greater than fish from Chilkoot Lake of the same sex and age. The Berners Bay/Chilkat Mainstem stock contribution included a harvest of 16,178 fish in District 115; these stocks were not enumerated for escapement. The mean date of harvest of the three runs was dissimilar; 10 July for Berners/Chilkat Mainstem, 12 August for Chilkoot Lake, and 18 August for Chilkat Lake. The mean date of escapement was 7 August for the Chilkoot run and 13 September for Chilkat.

KEY WORDS: Scale pattern analysis, stock allocation, Chilkoot Lake, Chilkat Lake, Berners Bay, Chilkat River Mainstem, Lynn Canal, sockeye salmon, total return, escapement, catch apportionment.

INTRODUCTION

Stockley (1950) first documented the obvious differences in freshwater scale patterns of adult sockeye salmon from Chilkoot Lake and Chilkat Lake. Bergander (1973) collected scales from the fishery for use in determining system of origin and demonstrated in 1974 the feasibility of identifying fish from the respective lakes using circuli counts and size of the freshwater zone in a dichotomous key. During the 1981 season the catch sample design was improved and catch allocation was done using linear discriminant function (LDF) analysis to sort linear scale measurements on a mainframe computer (Marshall et al. 1982). During that and the 1982 season (McPherson et al. 1983) measurements from age 1.3 scale patterns provided an age specific model which, when coupled with age composition data, were used to allocate catches with very high levels of precision. McPherson and Marshall (1986) demonstrated that visual classification of scale patterns could be used to allocate all age classes of Chilkoot Lake and Chilkat Lake fish with similar or higher levels of precision and accuracy as seen with the age-specific LDF models. McPherson (1987) used visual classification of freshwater age classes, independent of ocean age, to allocate catches to Chilkoot Lake and Chilkat Lake. Visual analysis of freshwater scale patterns has been proven to provide estimates of stock contribution of sockeye salmon stocks to the Lynn Canal (District 115) drift gill net fishery with a high degree of precision.

Estimation of the numbers of fish harvested by run is essential to sound management. Catch apportionment of the run coupled with escapement counts provide estimates of total return by brood year as well as rates of exploitation. Brood year returns can be used to evaluate optimum escapement requirements and to forecast interannual returns. Exploitation rates by stock, age class, and size provide managers with additional information by which to adjust time and area openings in order to achieve desired escapements. The temporal distribution of catches by stock and age is essential for calculating cumulative migratory time densities (Mundy 1979) which, when integrated with average timing data and historical cumulative time densities, form the basis for intraseason abundance forecasting. Comparison of the temporal distribution of age composition in catches and escapements can be used to calculate lag time, reconstruct the run distribution temporally, and to predict escapement in absence of timely weir counts.

The Lynn Canal (District 115) drift gill net fishery operates in those waters of Southeastern Alaska north of Little Island (Figure 1). While all five species of eastern Pacific salmon (*Oncorhynchus* sp.) are harvested, the fleet targets on sockeye salmon (*O. nerka*) from June through early September. Sockeye salmon harvested in Lynn Canal originate primarily from the Chilkoot Lake and Chilkat Lake drainages, but small spawning populations which utilize river habitat are found in several locations along the mainstem of the Chilkat River and along three rivers in Berners Bay: the Lace, the Gilkey, and the Berners. In order to accurately calculate other population attributes, each of the two lake runs must be allocated separately from the river group in catches.

The District 112 purse seine fishery operates in Chatham Strait (Figure 2). Sockeye salmon are harvested incidentally to pink (O. gorbuscha) and chum (O. keta) salmon. Typically, during most of July, only the western shore of Chatham Strait is open to fishing which is a management strategy designed to minimize the interception of sockeye salmon destined for spawning areas in Districts 111 and 115 (ADF&G 1984). In August, when the northern and eastern portions of District 112 are opened, the age composition of samples indicates that a large portion of the catch is composed of Lynn Canal (115) and Taku River (111) stocks (McGregor 1983; McGregor et al. 1984).

The purposes of this report are: (1) document the accuracy and precision of visually allocating the three sockeye salmon stocks of origin (Chilkoot Lake, Chilkat Lake, and a combination of Berners Bay and Chilkat River mainstem) in the Lynn Canal fishery by a blind testing procedure; (2) present the catch of each stock by week in the Lynn Canal fishery; (3) develop total run estimates for future use in evaluation of escapement goals and for forecasting escapements and catches by stock; (4) provide a minimum estimate of the catch of Chilkoot Lake and Chilkat Lake stocks in District 112; (5) present average length data by age and stock; and (6) provide estimates of migratory timing and exploitation rates for each run.

METHODS

Numbers of Fish

I obtained the number of fish caught in District 115 from the state of Alaska's records of individual fishermen and processors sales receipts. Catch statistics used were those available on 20 May 1985. Subsequent catch tabulations may differ slightly from those presented as errors are detected and corrected. Catches are reported by fishing period and assigned to a statistical week. A statistical week, used to report catch figures in Alaska, begins at 12:01 AM each Sunday and ends the following Saturday at midnight. Weeks are numbered sequentially beginning with the week encompassing the first Sunday in January.

Weir crews counted escapements into Chilkoot Lake and Chilkat Lake (Figure 1). The Chilkoot River weir, located approximately 0.8 kilometers upstream of the river mouth, was operated from 7 June through 5 October. Chilkat Lake weir, located at the lake's outlet approximately 35 kilometers upstream from the mouth of Chilkat River, was operated from 29 June through 22 October.

Age, Sex, and Length

Commercial catches and escapements at the two weirs were sampled throughout the season for scale, sex, and length data. Alaska Department of Fish and Game (ADF&G) employees sampled vessel and tender landings in the ports of Excursion Inlet, Sitka, Petersburg, Juneau, and Pelican. The weekly catch sampling goal was designed to collect sufficient samples to estimate the proportion of each age class in Lynn Canal to within five percentage points 90% of the time using standard binomial formulas in Cochran (1977). The goal of 700 fish per week was usually exceeded. Catches after 18

September were small and not sampled; the age composition observed for the period 15 to 18 September was used to represent the age composition of these catches. Dip nets were used to capture fish as they passed through the Chilkoot Lake weir, while beach seining was used at the Chilkat Lake weir site. Samples were taken from the spawning grounds on the Lace River (Berners Bay) and along the mainstem of the Chilkat River in locations where sockeye salmon were concentrated in clear tributaries. These samples were time and area limited and may not represent the entire Berners Bay/Chilkat Mainstem population.

Scales were obtained from the left side of the fish approximately two rows above the lateral line in an area along a diagonal from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin (INPFC 1963). The scales were mounted on gummed cards, and impressions made in cellulose acetate (Clutter and Whitesel 1956). Age was determined by visual examination of scale impressions magnified 70x on a microfiche reader; criteria used to determine age were essentially those of Mosher (1968). Ages are reported in European notation. (European formula: numerals preceding the decimal refer to the number of freshwater annuli, numerals following the decimal are the number of marine annuli. Total age is the sum of these two numbers plus 1.). Fish length was measured from mid-eye to fork-of-tail to the nearest 5 mm. Sex was determined by examination of external dimorphic sexual maturation characteristics, including kipe development, belly shape, trunk depth, and jaw shape. Sex determination was most often made by two samplers and where disagreement occurred, sex was verified by inspecting gonads through a small incision in the belly.

Estimates of the total catch or escapement of each age class were made by applying period age composition data to the total number of fish during those time periods and summing the estimates across time periods. Total run age composition was calculated from the total number caught or escaped at each age.

Average lengths by age and sex were calculated for catches and escapements from each run.

Blind Tests

Scale samples collected each week from District 115 were allocated to stock of origin to provide timely estimates of stock contribution for in-season management purposes. Time and area adjustments are made in the fishery based on the comparison of the current years' cumulative catches and escapements of each stock to the historical average in order to gauge run strength and achieve the escapement goals of $70,000 \pm 10,000$ for Chilkoot Lake and $80,000 \pm 10,000$ for Chilkat Lake. Catch figures are updated and the allocations are corrected for misclassification as part of this report in order to add precise and accurate estimates of the current years' data to the historic Lynn Canal sockeye salmon stock identification data base. In order to test the accuracy of the in-season allocation and to correct for misclassification between stocks, a blind testing procedure was used.

Previous studies (McPherson and Marshall 1986, McPherson 1987) indicate that sufficient differences exist in freshwater scale patterns of Chilkat Lake and Chilkoot Lake stocks to identify the origin of catches by visual inspection at relatively low magnification. Small numbers of fish either with an intermediate (in size) freshwater scale pattern of fish aged 1. and 2. or fish aged 0. (none of which are seen at either lake system) appeared in catch samples and were assigned to the Chilkat return because of the low number of fish (less than 5,000) involved and because it was believed that most of these fish originated from river-type populations along the mainstem of the Chilkat River in those years. In 1985, however, fish of this type comprised a large proportion of early season catches, especially in or near Berners Bay. For these reasons, it was necessary to allocate the intermediate pattern and fish aged 0. as a separate stock entity which grouped river-type fish from Chilkat River mainstem with those from Berners Bay. Escapement scales were collected from these fish and added to the blind testing procedure to determine if the visual allocation method was adequate for allocating three stocks in Lynn Canal.

A separate test was designed for each freshwater age class common to two or more stocks. To construct each test, a technician selected scales from each of the three escapements according to numbers specified by a random number list generated by a computer. The computer was directed to include in each test the approximate proportions of each escapement that were estimated in the in-season analysis. For example, during the four weeks of the season approximately 48% of the fish aged 1. in Lynn Canal catches were estimated to be of Berners Bay/Chilkat mainstem origin in the in-season analysis and consequently, approximately 48% of the first test for fish aged 1. were directed to be randomly selected from that stock's escapement samples. After selection and remounting was completed for each test, I then visually classified the scales to stock of origin. The technician compared my classification of origin to the true origin for each scale which defined the accuracy of the method.

Four tests were made: (1) fish aged 1. for weeks 25 - 28 (197 readable scales); (2) fish aged 1. for weeks 29 - 42 (99 scales); (3) fish age 2. for all weeks (199 scales); and (4) fish aged 3. for all weeks (8 scales). The tests for fish aged 1. and 2. included escapement scales from all three stock groups; the test for fish aged 3. was comprised only of Chilkoot Lake and Chilkat Lake scales. Fish aged 0. were found only in escapements to Berners Bay/Chilkat mainstem, subsequently, a blind test was not needed for allocation of these fish.

From these four tests, each scale classified was compared to the actual origin to determine accuracy. While size of the freshwater growth zone was the principal scale characteristic I used to distinguish between runs, others taken into consideration were: (1) the size of the freshwater annuli; (2) the number of circuli in the freshwater annuli; (3) size of the focal plate; (4) completeness of the freshwater circuli, and (5) the spacing between circuli in the freshwater growth zone.

Mixed Stock Analysis

District 115:

The results of the blind tests were used to build a correction matrix to compensate for misclassifications in each test. The correction matrix is a square matrix with one column and one row for each group. The element in the i th row j th column of the matrix is the fraction of scales in group j that were classified as being from group i through the visual classification procedure. Diagonal elements in the matrix represent correctly classified scales, while off-diagonal elements represent misclassified scales.

Application of a classification model and its correction matrix M_j of freshwater age j to a set of scales from the catch provides estimates of interception rates (see Cook and Lord 1978). A sample of scales from a catch containing a mixture of groups can be represented by a vector u_j whose elements are the proportions that each group actually represents in the catch of freshwater age j . Use of the visual classification model to distinguish scales of unknown origin provides an estimate \hat{u}_j which is related to u_j in the following manner:

$$u_j' M_j = \hat{u}_j'$$

Since M_j and \hat{u}_j are known:

$$u_j = M_j^{-1} \hat{u}_j$$

where u_j now contains the corrected estimates of the interception rates for each group of freshwater age j . For this procedure Pella and Robertson (1979) developed a means of calculating a variance for the estimated interception rates.

Letting \hat{f}_{tij} be the corrected fraction (from u_j) of a sample from a given week of a given freshwater age group which is estimated to belong to stock i , and $C_{t...}$ be the commercial catch of week t of all stocks and ages (Note: sums over a subscript will be denoted by replacing the subscript by a dot), the estimated total season catch of stock i is calculated as:

$$\hat{C}_{i..} = \sum_t \sum_j \hat{f}_{tij} C_{t...} \quad (1)$$

Let \hat{n}_{tijk} be the number of scales from week (time stratum) t , of freshwater age j and saltwater age k and stock i . The weekly catch of a given stock by freshwater and saltwater age is calculated by apportioning the estimated number of fish of a given stock and freshwater age into saltwater ages, based on the saltwater age distribution of scale samples:

$$\hat{C}_{tijk} = (\hat{f}_{tij} \quad \hat{C}_{t.j.}) \begin{bmatrix} \hat{n}_{tijk} \\ \hat{n}_{t.j.} \end{bmatrix} \quad (2)$$

The variance of \hat{C}_{tijk} is a function of the size of the catch in week t, the sample size and proportion of catch allocated to each age within each stock, and the uncertainty due to misclassification:

$$S^2(\hat{C}_{tijk}) = \frac{(\hat{p}_{tijk})(1 - \hat{p}_{tijk}) (\hat{C}_{ti..})^2}{\hat{n}_{ti..} - 1} + (\hat{s}_{tij.})^2 [(\hat{C}_{ti..} \hat{p}_{tijk})^2] \quad (3)$$

Where:

$$\hat{p}_{tijk} = \frac{\hat{C}_{tijk}}{\hat{C}_{ti..}}$$

$$\hat{s}_{tij.}^2 = \text{the standard error around the freshwater stock composition proportions due to misclassification.}$$

The variance of $\hat{C}_{tj.}$ is a function of: (1) the magnitude of the total catch in week t; (2) the sample size and proportion of sample allocated to each age and each stock; and (3) the uncertainty due to misclassification. This variance was calculated using the procedures described in Appendix C of Oliver et al. (1985).

District 112:

Catches in District 112 are of an extreme mixed stock nature and a blind test procedure was not developed for this fishery because it was not known what stocks to include. As noted earlier, changes in age composition have been used to indicate a presence of Lynn Canal and Taku River amongst these catches, especially late in the season. Due to the magnitude and age composition of catches in the northern and eastern portions of this district in 1985, I allocated the scale patterns that were obviously from Chilkoote Lake and Chilkat Lake; it was not possible to allocate fish from Berners Bay/Chilkat mainstem due to the number of other intermediate size scale patterns and the presence of fish aged 0. from Taku River in these catches. First order estimates of the proportion of each lake stock were then applied to period catches.

Mean Date of Migration

Mean dates of harvest and escapement and the associated variance were calculated by standard statistical procedures described by others including Mundy (1982). Cumulative migratory time densities for the principal age classes in the three stocks are presented as per Mundy (1979).

RESULTS

Blind Tests

McPherson et al. (1983) showed large and consistent differences in the number of circuli for fish aged 1.3 between Chilkoote (mean of 6.0, SD of 1.6) and Chilkat (mean 13.1, SD 2.2) Lakes for samples collected from 1976 through 1982. Similarly, the size of the freshwater zone was smaller for

Chilkoot River fish (mean 54.6 SD 13.4) than Chilkat River fish (mean 149.0 SD 24.0). That such large differences are easy to distinguish with the naked eye is obvious by comparing photographs (Figures 3 and 4) for fish of each principal age class, by stock. These large differences are consistent over many years which supports the grouping of scales of a similar freshwater age, regardless of ocean age, into freshwater classification tests.

Results of the four blind tests used for determining the accuracy of my visual classification of fish from the Chilkoot Lake, Chilkat Lake, and Berners Bay/Chilkat Mainstem systems are summarized in Table 1. Overall accuracy was high in all tests and ranged from 93.4% (fish aged 1. for 16 June to 13 July) to 100% (fish aged 3., realizing a sample size of 8). In the first test for fish with one freshwater annulus, 12% of the scales from Chilkat Lake and 7% from Chilkoot Lake misclassified as Berners Bay/Chilkat Mainstem; 2% of the Berners Bay/Chilkat Mainstem scales misclassified to each of the Chilkat and Chilkat Lake groups. In the second test for fish aged 1. Chilkat Lake fish were the only group that misclassified, 6% to Chilkoot Lake and 11% to Berners Bay/Chilkat Mainstem. In the tests for fish with two and three freshwater annuli accuracy was near-perfect (99%) and perfect (100%), respectively.

The corrected (for misclassification) stock proportions are compared to the in-season estimates in Table 2. The corrected proportions were similar to the first order proportions. The differences within individual strata ranged from 0.001 to 0.147 for Chilkoot Lake fish, from 0.007 to 0.147 for Chilkat Lake fish, and from 0.001 to 0.069 for Berners Bay/Chilkat Mainstem fish. The total post-season allocation changed 0.001 for Chilkoot Lake, 0.008 for Chilkat Lake, and 0.007 for Berners Bay/Chilkat Mainstem. Because both lake systems misclassified more often as Berners Bay/Chilkat mainstem than vice versa the corrected proportion of the lake systems were most often higher.

Harvest

District 115:

Annual harvests in District 115 have ranged between 18,388 and 369,311 sockeye salmon from 1960 to 1984, with an average annual harvest of 127,856 fish. The 1985 harvest of 304,006 was the third-highest harvest since 1960.

The harvest of sockeye salmon in Lynn Canal occurred over an 18-week period (Table 3). Management strategies to selectively harvest or protect stocks of sockeye, chinook (O. tshawytscha), coho (O. kisutch), pink (O. gorbuscha), or chum (O. keta) salmon resulted in considerable variation in the time and areas open to fishing each week, as noted in Table 3.

Fish aged 1.3 dominated the catch (51.2%), followed by fish aged 2.3 (35.2%), 2.2 (8.4%), and 1.2 (3%); fish of all other age classes accounted for approximately 2% of the catch (see Appendix Table 1). Temporal trends in age composition of the catch were evident (Figure 5). The percentage

of fish aged 1.3 decreased through the season while those aged 2.3 increased. During the last half of the season, fish aged 2.2 also increased in relative abundance.

The harvest of 304,006 sockeye salmon was estimated to be 152,325 Chilkoot Lake fish, 135,503 Chilkat Lake fish, and 16,178 fish from Berners Bay/-Chilkat Mainstem (Appendix Table 2). Fish of both Chilkoot and Chilkat Lake runs were caught in each fishing period during the 18-week season (Figure 6). Fish from Berners Bay/Chilkat Mainstem were present from week one through week nine with catches occurring primarily in Sections 15-B and 15-C.

The harvest of Chilkoot River fish was mostly fish aged 1.3 (79.5%), 2.3 (12.6%), and 1.2 (5.2%) (Appendix Table 3). The relative abundance of all age classes changed little throughout the season, however age class 2.3 fish decreased slightly as the season progressed while fish aged 1.2 and 1.3 increased slightly (see Figure 7C). A majority (54%) of the harvest was males.

The catch of Chilkat River fish was dominated by fish aged 2.3 (64.8%) 2.2 (18%), and 1.3 (16.1%) (Appendix Table 4). Fish of other age classes accounted for approximately 1% of the catch. Early in the run, age 1.3 fish predominated and accounted for 46.7% to 81.1% of the harvest (Figure 7B). The percent of fish aged 1.3 dropped sharply to 29.4% of the catch during week 32 (4 - 10 August) and continued to decrease steadily to 1.8% of harvest in the last sampling period. The relative abundance of fish aged 2.3 and 2.2 increased as the season progressed, accounting for the majority of the catch after 4 August. Approximately equal numbers of males and females were harvested.

The harvest of Berners Bay/Chilkat Mainstem was comprised principally of two age classes, 1.3 (78.2%) and 0.3 (15.6%) (Appendix Table 5). Fish aged 1.3 comprised over 80% of the catches during the first four weeks of the season. After week four the percentage of age 1.3 fish dropped to below 40% and began to increase over four weeks to 65.5% (Figure 7A). Fish aged 0.3 comprised under 20% of the catch during the first four weeks but rose to 56.8% at week five, then decreased over the next four weeks to 34.5% in week nine. Fish of this stock were extremely rare after week 33 (11 - 17 August). Approximately equal numbers of each sex were harvested.

District 112:

Annual sockeye catches in District 112 have averaged 22,944 for 1981 to 1984 and the catch of 37,121 in 1985 was 41% higher than any other annual catch during this period.

The harvest in the District 112 was minor (37,121) in comparison to that in Lynn Canal. Catches peaked during the period 4 - 10 August when 14,229 sockeye salmon were harvested, and the following two weeks when approximately 11,000 fish were harvested (Table 4). The temporal distribution of age composition data reveals that fish aged 1.3 decreased from 63.6% in the first sampling period (30 June to 27 July) to 16.0% in the last period (25 August - Sept. 7), while during the same periods fish aged 2.2 and 2.3 were increasing from 4.5% and 5.8% to 22.9% and 48.1%, respectively (Table

5). Proportions of sockeye salmon with two freshwater annuli of this magnitude are found only in Chilkat Lake in northern Southeastern Alaska. Examination of scale samples indicated that large numbers of fish with two freshwater annuli and scale patterns like those from Chilkat Lake fish were indeed harvested after 4 August. Thus, a minimum of 13,087 Chilkat Lake fish and 3,448 Chilkoot Lake fish were harvested in District 112 in 1985; catches of both lake stocks peaked during the period 4 - 10 August. The temporal distribution of stock age composition data indicates that the relative abundance of fish aged 1.3 from each run decreased throughout the season (see Appendix Tables 6 and 7).

Escapement

Yearly escapements for the period 1976 to 1984 have averaged 84,795 fish returning to Chilkoot Lake and 85,301 to Chilkat Lake. The escapements in 1985 of 69,026 fish to Chilkoot Lake and 57,724 to Chilkat Lake were the second lowest of the 10-year period for each lake system.

The estimated escapement of sockeye salmon into Chilkat Lake was 57,724 fish. The weir was operated from 29 June through 22 October (see Appendix Table 8). The escapement was protracted and was characterized by two periods, a weak early period from 29 June through 22 August when 6,299 fish were counted and a strong late period from 23 August through 6 October when 51,425 fish passed the weir (Figure 8). During the late period a strong mode (12,370 fish) occurred on 22 September.

The estimated escapement into Chilkoot Lake was 69,026 fish. The weir was operated from 7 June through 5 October (see Appendix Table 9). The escapement was less protracted than the Chilkat Lake (variance = 288 versus 438) escapement. Peak periods of escapement occurred during the period 26 July to 20 August. A weakly defined mode occurred on 29 June and a stronger mode occurred on 30 July (Figure 8).

The Chilkat Lake escapement was dominated by fish with two freshwater annuli (86.6%), which included fish aged 2.1 (3.5%), 2.2 (38.8%), and 2.3 (44.3%) (Appendix Table 10). Fish aged 1.3 accounted for 11.1% of the escapement and five other age classes contributed to the remaining 2.3% of the fish in the escapement. Period estimates of age composition show that fish aged 1.3 decreased in relative abundance through the season and those aged 2.2 and 2.3 increased (Figure 9A). The weak early period was characterized by fish with one freshwater annulus and the strong late period was characterized by fish with two freshwater annuli. Males comprised 55% of the samples. This preponderance of males was seen across all age classes excluding age 2.2 where females were more abundant.

In the Chilkoot River escapement, fish aged 1.3 contributed to 66.6% of the total samples, while fish aged 2.3 (15.8%) and 1.2 (12.1%) were second and third in importance (Appendix Table 11). Trends through time in the age composition of the escapement (Figure 9B) were similar to trends in the catch samples, and showed that fish aged 1.3 and 1.2 increased slightly in relative abundance through 31 July and fluctuated slightly through 3 September, while age class 2.3 fish decreased through 31 July and fluctuated slightly as the season progressed. Sex composition data reveals that males were much more abundant (61%) and that this trend

was evident across all time periods and age classes. This dominance was especially evident among fish aged 1.2 where males were more abundant by a 12.4:1 ratio, which contrasts to previous studies in 1981, 1982, 1983, and 1984 where this same ratio was 1:1, 0.9:1, 1.8:1, and 5:1, respectively.

Limited samples collected from the mainstem Chilkat River on 2 October indicate a majority (83%) of fish aged .3 were present while fish with no freshwater annulus (aged 0.) dominated (57.3%) freshwater age groups (Appendix Table 12). Fish aged 0.3 (42.6%) and 1.3 (39.7%) were most abundant, followed by fish aged 0.2 (14.7%). Males and females were approximately equally abundant.

Samples collected from the Lace River in Berners Bay on 24 August were dominated by fish aged 1. (78.6%), while fish age 0. were second in importance (20.3%) (Appendix Table 13). Fish aged .3 (66.7%) were the dominant ocean-age, however, fish aged .2 were much more common (23.8%) than in 1984 when the collection was comprised almost exclusively (98.4%) of three-ocean age fish. Among individual age classes, fish aged 1.3 (61.9%) were most abundant followed by fish aged 1.2 (11.9%) and 0.2 (10.7%).

Exploitation Rates

The total run of sockeye salmon to Chilkoot Lake was 224,799 fish of which 155,773 were caught and 69,026 escaped to spawn (Table 6). The exploitation rate for this run was 0.69. The total run of Chilkat River sockeye salmon was 206,314 of which 148,590 were harvested and 57,724 escaped to spawn. The exploitation rate for this run was 0.72.

Exploitation rates for Chilkoot and Chilkat Lake sockeye salmon tended to increase directly with ocean-age regardless of stock (Table 6). The lone exception among age classes with a total return of greater than 1,000 fish occurred in Chilkoot Lake fish aged 1.4 which were exploited at a lower rate than fish aged 1.3. Among fish aged .2, one-half of the Chilkoot fish and 58% of the Chilkat fish were caught, while among fish aged .3 72% of the Chilkoot Lake fish and 78% of the Chilkat Lake fish were harvested. Fish aged .4 from Chilkoot Lake were exploited at 60%; fish from this ocean age were rare from Chilkat Lake as were ocean-age-.1 fish in both returns.

Size at age by sex and stock

Chilkat Lake sockeye were longer than Chilkoot Lake and Berners Bay/-Chilkat Mainstem fish of the same age and sex (Table 7). In the District 115 catch, Chilkat Lake fish were larger than both Chilkoot Lake fish and Berners Bay fish, which were of similar size. Differences were greater among fish aged 2. than 1., with the greatest average difference in age-2.2 fish where Chilkat males were 42 mm on average and females 33 mm larger than Chilkoot Lake fish.

Chilkoot Lake fish were generally longer in the District 115 catches than in the escapements with the exception of females aged 2.3 (Table 7). The average difference in mean lengths was greatest among fish aged .2 males (38 mm in age-1.2 and 34 mm in age-2.2). It is interesting to note that

in the catches males were longer in all age classes, but escapement samples revealed that ocean-age-.2 females were longer than their male counterparts.

Chilkat Lake fish in District 115 catches were also longer than those sampled in escapements with one exception: males were 11 mm smaller and females were 2 mm smaller for fish aged 1.3 (Table 7). Fish aged .2 exhibited the largest differences for males aged 2.2 (36 mm) and for females aged 1.2 (15 mm).

The average length data for Berners Bay/Chilkat Mainstem is not adequate to make comparisons between average lengths in catches and escapements as only a portion of the spawning grounds were sampled and the escapement samples may not be representative of the entire spawning population. It should be noted, however, that of the samples obtained the average lengths in the both escapement collections are smaller than those calculated for the catch in all age classes, particularly among fish with two ocean annuli.

Few obvious trends were apparent in the temporal distribution of length data collected from catch samples (Appendix Tables 14 - 16). Chilkat Lake fish aged 1.3 and 2.3 increased in length by an average of 10 - 15 mm during the latter half of the season. Chilkoot Lake fish aged 1.3 averaged 13 - 15 mm above the season average in the last two periods and fish aged 2.3 were longer than the season average during the last five periods. Fish of other ages exhibited no apparent trends.

Escapement length data from Chilkat Lake indicated little change over time was apparent within individual age classes (McPherson and McGregor 1986). Fish aged 1.2 in the Chilkoot Lake escapement increased an average of 23 - 27 mm as the season progressed and fish aged 1.3 were 10 mm longer than the season average during the last escapement period.

Mean dates of Migration

This section summarizes the mean dates of harvest and escapement by age and stock group. Significant differences in average migratory timing were evident in both inter- and intra-stock comparisons.

Catch:

The mean date of the harvest (MDH) of Berners Bay/Chilkat Mainstem fish was earliest (7 July), followed by Chilkoot Lake (12 August), and Chilkat Lake (18 August) (Table 8).

Slight differences were found among the MDH of the principal age classes in the Chilkoot run, and older fish were harvested slightly earlier. Fish aged 2.3, 1.3, and 1.2 exhibited a MDH of 9 August, 13 August, and 15 August, respectively. Over 50% of all major age classes were harvested during the period 4 - 24 August. Fish aged 2.3 exhibited the most protracted harvest as indicated by a standard error (SE) of 2.5, while fish aged 2.2 were the least protracted (SE = 1.8).

In contrast to the Chilkoot Lake run, the MDH for the major age classes in the Chilkat Lake run were dissimilar to a much greater degree. Fish aged 1.3 were harvested much earlier (MDH = 30 July) than those aged 2.3 (22 August) and 2.2 (25 August). Over 50% of the fish aged 2. were harvested in the two-week period 25 August to 7 September while most of those aged 1.3 were harvested prior to 1 August. The harvest of fish aged 1.3 was more protracted (SE = 2.7) than fish aged 2.2 which were less protracted (SE = 1.6).

Most fish from Berners Bay/Chilkat Mainstem were harvested early in the season as was indicated by mean dates of harvest for fish aged 1.3 (8 July) and 0.3 (18 July).

Escapement:

The trends in mean dates of escapement (MDE) by age class for Chilkoot Lake and Chilkat Lake were relatively the same as trends seen in the commercial catch. Age classes in the Chilkoot Lake run exhibited the following dates of arrival; fish aged 2.3 arrived earliest (MDE = 2 August), followed by those aged 1.3 (MDE = 8 August) and 1.2 (MDE = 9 August) (Table 8). Fish aged 2.3 were the most protracted (SE = 2.9) and those of age class 1.2 the least (SE = 2.0). In the Chilkat Lake run fish aged 1.3 (MDE = 12 August) arrived over five weeks earlier than those aged 2.3 (MDE = 17 September) and 2.2 (MDE = 19 September), and fish aged 1.3 showed the most protracted (SE = 2.9) escapement.

DISCUSSION

The visual freshwater classification technique which was used to allocate all stock groups in Lynn Canal is desirable for several reasons. First, all freshwater age groups were included which meant that all fish were classified meaning that a variance could be calculated around the entire allocation to each of the three stocks. Second, high overall classification accuracies in all test matrices indicates that first order point estimates which were used for in-season management purposes were not far removed from the post-season estimates. Additionally, separate allocation of the Berners Bay/Chilkat Mainstem stock group from Chilkat Lake improved the allocation and ensuing Chilkat Lake exploitation rate estimates. Finally, the technique is very cost effective and requires less time when compared to allocating methods that rely on linear or pattern measurements generated from computer hardware and software.

Although only scales collected in 1985 were used in the analyses, the results indicate that differences in scale patterns are consistent from year to year as evidenced by the high accuracy of all correction matrices. Inclusion of first order catch stock proportions in the blind tests results in an overall classification accuracy that closely represents conditions in the catch.

The calculation of exploitation rates by run provides the opportunity to evaluate the success of management decisions aimed at selectively harvesting the Chilkoot Lake and Chilkat Lake runs while achieving the preset

escapement goals. Chilkoot Lake (0.69) and Chilkat Lake (0.72) sockeye salmon were exploited at approximately the same rates in 1985, but the escapement at Chilkat Lake fell short of the lower end of the goal (Table 5). These values contrast to those estimated in 1983 and 1984 when the Chilkoot Lake run was exploited at a higher rate (0.75 and 0.70, respectively) than Chilkat Lake run fish (0.49 and 0.47, respectively), and escapements to both systems in both years exceeded the upper ranges of the escapement goals. This was due to varying interannual residence times of the Chilkat Lake fish in District 115 and greater effort directed at sockeye late in the season due to price (Ray Staska, ADF&G, Haines).

Estimation of the mean dates of harvest is a first step toward categorizing runs of Lynn Canal sockeye salmon into early, late, and average runs with respect to migratory timing as was demonstrated by Mundy (1982) for Yukon River chinook salmon. The MDH data show that the Chilkat Lake run arrived six days later relative to the Chilkoot Lake run in 1985. Similar trends were observed in 1983 and 1984 when the differences were 3 and 4 days later, respectively. Interannual comparisons of MDH data show that the 1985 harvest of both runs was later than in the two previous years. The 1985 MDH of 12 August for the Chilkoot run compares to earlier dates of 7 August in 1983 and 31 July in 1984. Similarly, the 1985 MDH of 18 August for the Chilkat Lake run was one week and two weeks later than the respective 1983 and 1984 calculations. It is interesting to note that the MDE for Chilkoot Lake was earlier than the MDH. This was the result of selective harvest strategies which significantly influence the escapement distribution exploited the latter portion of the Chilkoot Lake run to a greater extent.

The use of cumulative migratory time densities (Mundy 1979) to describe average migratory timing is advantageous in that the influence of large interannual fluctuations in abundance are removed. When these estimates are summed across years to calculate an average cumulative density, each year's migration is weighted equally. An average probability of catch in each time interval which, when integrated with adjustments for early or late migrations, can then be used in forecasting abundance by stock on an in-season basis.

Lynn Canal sockeye salmon have been allocated by stock (Chilkoot and Chilkat Lakes) and age since 1981, affording a unique stratification of migratory time densities. Forecasting by stock is certainly indicated as separate escapement goals are set for each lake, and additional forecasting by age is available if needed for management purposes. Within the Chilkoot return the MDH for all principal age classes was relatively similar in 1985 as well as in 1983 and 1984 and within this stock, stratification by age may not reduce variability in forecasting. The significant difference ($p < 0.0001$) in migratory timing between freshwater age classes of the Chilkat Lake (Table 5) run suggests that an objective division of the Chilkat Lake sockeye population into two components is appropriate. The presence of discrete timing for age classes within the Chilkat Lake run is consistent interannually and has fishery management implications. If two discrete temporal components exist, separate strategies for setting and achieving escapement goals need to be evaluated.

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Table 1. Classification matrices for visual classification models of freshwater age classes of sockeye salmon stocks contributing to the Lynn Canal (District 115) drift gill net fishery in 1985.

Model: Fish aged 1. (Statistical Weeks 25 - 28; 16 June - 13 July)

Actual Stock of Origin	Sample Size	Classified Group of Origin		
		Chilkoot	Chilkat	Berners/Mainstem
Chilkoot	71	.930		.070
Chilkat	34		.882	.118
Berners/Mainstem	92	.022	.022	.956
Overall Classification Accuracy = .934				

Model: Fish aged 1. (Statistical Weeks 29 - 42; 14 July - 19 October)

Actual Stock of Origin	Sample Size	Classified Group of Origin		
		Chilkoot	Chilkat	Berners/Mainstem
Chilkoot	80	1.000		
Chilkat	18	.056	.833	.111
Berners/Mainstem	1			1.000
Overall Classification Accuracy = .970				

Model: Fish aged 2. (All Weeks)

Actual Stock of Origin	Sample Size	Classified Group of Origin		
		Chilkoot	Chilkat	Berners/Mainstem
Chilkoot	65	.985		.015
Chilkat	132	.008	.992	
Berners/Mainstem	2			1.000
Overall Classification Accuracy = .990				

Model: Fish aged 3. (All Weeks)

Actual Stock of Origin	Sample Size	Classified Group of Origin	
		Chilkoot	Chilkat
Chilkoot	1	1.000	
Chilkat	7		1.000
Overall Classification Accuracy = 1.000			

Table 2. Comparison of inseason versus postseason weekly stock composition estimates of the Lynn Canal sockeye salmon harvest, 1985.

Statistical Week	Chilkoot		Chilkat		Berners/Mainstem	
	Inseason	Postseason	Inseason	Postseason	Inseason	Postseason
25	0.500	0.493	0.357	0.382	0.143	0.125
26	0.395	0.402	0.337	0.302	0.268	0.296
27	0.302	0.276	0.216	0.174	0.482	0.551
28	0.352	0.353	0.273	0.281	0.375	0.366
29	0.268	0.308	0.639	0.651	0.093	0.041
30	0.551	0.557	0.357	0.380	0.092	0.063
31	0.642	0.639	0.320	0.334	0.038	0.027
32	0.682	0.702	0.276	0.285	0.042	0.013
33	0.587	0.628	0.392	0.360	0.021	0.012
34	0.754	0.649	0.240	0.350	0.006	0.001
35	0.247	0.266	0.750	0.733	0.003	0.001
36	0.215	0.362	0.785	0.638	0.000	0.000
37	0.053	0.140	0.947	0.859	0.000	0.001
38-42	0.147	0.140	0.853	0.860	0.000	0.000
Total	0.502	0.501	0.438	0.446	0.060	0.053

Table 3. Fishery openings, effort, harvest, and CPUE of sockeye salmon in Lynn Canal (District 115) by date and statistical week, 1985.

Section	Statistical Week	Dates Fished	Hours (H)	Boats (B) 1/	Catch	CPUE Fish/Boatday
15-A 2/	25	6/16 - 6/19	72	41	1,068	8.7
15-A 2/	26	6/23 - 6/25	48	67	5,707	42.6
15-A & C 3/	27	6/30 - 7/02	48	87	9,397	54.0
15-AB & C 4/	28	7/07 - 7/10	72	119	18,293	51.2
15-A & C 5/	29	7/14 - 7/16	48	77	6,637	43.1
15-A & C 6/	30	7/21 - 7/24	48	73	8,275	56.7
15-A & C 3/	31	7/28 - 7/30	48	110	27,388	124.5
15-A & C 7/	32	8/04 - 8/06	48	145	33,960	178.7
15-A & C 7/	33	8/11 - 8/13	48	186	31,577	84.9
15-A & C 8/	34	8/18 - 8/21	72	204	74,933	163.3
15-A & C 9/	35	8/25 - 8/28	72	222	48,197	96.5
15-A & C 9/	36	9/01 - 9/04	72	212	26,384	55.3
15-A & C 10/	37	9/08 - 9/10	48	242	9,089	18.8
15-A & C 11/	38	9/15 - 9/18	72	240	2,364	3.3
15-A & C 12/	39	9/22 - 9/25	72	245	573	0.8
15-A & C 13/	40	9/29 - 10/2	72	224	205	0.3
15-A & C 13/	41	10/6 - 10/09	72	165	76	0.1
15-A 14/	42	10/14-10/16	48	97	6	0.0

1/ Ray Staska, 1986, ADF&G, Comm. Fish Div., Haines, Ak., USA

2/ Section 15-A open south of the latitude of the southernmost tip of Seduction Point (Southern boundary of 15-A moved to the latitude of Pt. Saint Mary).

3/ Section 15-A open same as above.
Section 15-A open north and west of a line from Little Island light to Vanderbilt Reef light to the shore of Bridget Cove to harvest chum salmon.

4/ Section 15-A open same as above.
Section 15-B open.
Section 15-C open same as above.

5/ Section 15-A open south of the latitude of the southernmost tip of Seduction Point and north of the latitude of Point Sherman.
Sections 15-A and 15-C are open within two nautical miles of the western shore south of the latitude of Point Sherman.

6/ Section 15-A open south of the latitude of the southernmost tip of Seduction Point through noon 7/23, except that in those waters within two nautical miles of the western shore of Lynn Canal south of the latitude of Point Sherman the weekly fishing period open through noon 7/24.
Section 15-C open north and west of a line from Little Island light to Vanderbilt Reef light to the southernmost tip of Mab Island then due east to the shore of Bridget Cove.
The waters of sections 15-A and 15-C closed south of the latitude of Point Sherman from 11:00 PM to 5:00 AM each day to reduce the incidental harvest of small chinook salmon.

7/ Section 15-A open south of the latitude of the southernmost tip of Seduction Point and in the waters of Chilkoot Inlet north of the latitude of Mud Bay Point.
Section 15-C is open within two nautical miles of the western shore of Lynn Canal except Endicott River closed within a radius of one nautical mile from the mouth of the river and William Henry Bay closed within one-half nautical mile of the mouth of the Beardslee River.

(Continued)

Table 3. Fishery openings, effort, harvest, and CPUE of sockeye salmon in Lynn Canal (District 115) by date and statistical week, 1985 (continued).

-
- 8/ Section 15-A open except those waters in the Chilkat Inlet north of the latitude of Seduction Point closed through noon 8/20. Those portions of Chilkoot and Lutak Inlets north of the latitude of Mud Bay Point extended through noon 8/21. Section 15-C open same as above. CPUE adjusted to reflect a 75% reduction of effort during the 24 hour extension north of Mud Bay Point.

 - 9/ Section 15-A including Lutak Inlet to the mouth of the Chilkoot River open through noon, Tuesday, except that Chilkat Inlet closed north of the latitude of the northernmost tip of Kochu Island through noon, Monday, and closed north of the latitude of Seduction Point from 12:01 PM Monday through noon, Tuesday. Section 15-A extended for 24 hours (12:01 PM, Tuesday, through noon, Wednesday) in the waters of Chilkoot Inlet and Lutak Inlet north of the latitude of Seduction Point to harvest Chilkoot River sockeye salmon. CPUE adjusted to reflect a 75% reduction in effort during the extension. Section 15-C open through noon Tuesday.

 - 10/ Section 15-A including Lutak Inlet to the mouth of the Chilkoot River open through noon, Tuesday (9/10), except that Chilkat Inlet closed north of the latitude of the Letnikof light through noon, Monday (9/9), and after this time north of a line from the Glacier Point marker to a marker at 59 degrees 06' 35" N. lat., 135 degrees 21' 42" W. long. Section 15-C open.

 - 11/ Section 15-A open including Lutak Inlet to the mouth of the Chilkoot River through noon 9/17. Section 15-A extended 24 hours through noon 9/18 north of the latitude of Point Sherman to harvest chum salmon. Section 15-C open through noon 9/17.

 - 12/ Section 15-A open through noon 9/24 except the waters north of the latitude of Point Sherman are open through noon 9/25 to harvest chum salmon. Section 15-C open through noon 9/24 except the waters south of the latitude of Point Bridget are open through noon 9/25 to harvest chum salmon.

 - 13/ Section 15-A open north of the latitude of Point Sherman to harvest chum salmon. Section 15-C open south of the latitude of Point Bridget to harvest chum salmon.

 - 14/ Section 15-A open north of the latitude of Point Sherman to harvest chum salmon.

Table 4. Harvest of Chilkoot Lake and Chilkat Lake sockeye salmon in the District 112 purse seine fishery, by fishing period, 1985.

Stat Week	Inclusive Dates		Chilkoot Lake Catch	Chilkat Lake Catch	Total District 112 Catch
27-30	6/30-7/27	Number	688	404	7,837
		Percent	8.8	5.2	
31	7/28-8/3	Number	312	150	3,191
		Percent	9.8	4.7	
32	8/4-8/10	Number	1,461	5,077	14,229
		Percent	10.3	35.7	
33	8/11-8/17	Number	734	4,196	7,072
		Percent	10.4	59.3	
34	8/18-8/24	Number	202	2,738	3,958
		Percent	5.1	69.2	
35-36	8/25-9/7	Number	51	522	834
		Percent	6.1	62.6	
Total	6/30-9/7	Number	3,448	13,087	37,121
		Percent	9.3	35.3	

Table 5. Age composition of the District 112 purse seine catch of sockeye salmon by age class and fishing period, 1985.

Brood Year and Age Class															
	1982		1981			1980				1979			1978		
	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	2.4	Total	
Statistical Weeks	27	- 30	(June 30 - July 27)												
All Fish															
Sample Number	2	3	14	59	1	3	210	15		4	19			330	
Percent	0.6	0.9	4.2	17.9	0.3	0.9	63.6	4.5		1.2	5.8			100.0	
Std. Error	0.4	0.5	1.1	2.1		0.5	2.7	1.1		0.6	1.3				
Number	48	71	332	1401	24	71	4989	356		94	451			7837	
Statistical Week	31	(July 28 - August 3)													
All Fish															
Sample Number	1	1	36	51		2	137	31			38			297	
Percent	0.3	0.3	12.1	17.2		0.7	46.1	10.4			12.8			100.0	
Std. Error			1.9	2.2		0.5	2.9	1.8			1.9				
Number	11	11	387	548		22	1471	333			408			3191	
Statistical Week	32	(August 4 - 10)													
All Fish															
Sample Number	3	2	9	21	2	1	53	54			39		1	185	
Percent	1.6	1.1	4.9	11.4	1.1	0.5	28.6	29.2			21.1		0.5	100.0	
Std. Error	0.9	0.8	1.6	2.3	0.8		3.3	3.4			3.0				
Number	231	154	692	1615	154	77	4076	4153			3000		77	14229	
Statistical Week	33	(August 11 - 17)													
All Fish															
Sample Number	3	3	3	23			49	62	1	2	95			241	
Percent	1.2	1.2	1.2	9.5			20.3	25.7	0.4	0.8	39.4			100.0	
Std. Error	0.7	0.7	0.7	1.9			2.6	2.8		0.6	3.2				
Number	88	88	88	675			1438	1819	29	59	2788			7072	
Statistical Week	34	(August 18 - 24)													
All Fish															
Sample Number	2	2	17	45	8	1	114	270	1	2	318	4	1	785	
Percent	0.3	0.3	2.2	5.7	1.0	0.1	14.5	34.4	0.1	0.3	40.5	0.5	0.1	100.0	
Std. Error	0.2	0.2	0.5	0.8	0.4		1.3	1.7		0.2	1.8	0.3			
Number	10	10	86	227	40	5	575	1361	5	10	1604	20	5	3958	
Statistical Weeks	35	- 36	(August 25 - Sept. 7)												
All Fish															
Sample Number				14	2		21	30			63	1		131	
Percent				10.7	1.5		16.0	22.9			48.1	0.8		100.0	
Std. Error				2.7	1.1		3.2	3.7			4.4				
Number				89	12		134	191			402	6		834	
Combined Periods (Percentages are weighted by period catches)															
All Fish															
Sample Number	11	11	79	213	13	7	584	462	2	8	572	5	2	1969	
Percent	1.0	0.9	4.3	12.3	0.6	0.5	34.2	22.1	0.1	0.4	23.3	0.1	0.2	100.0	
Std. Error	0.4	0.3	0.7	1.1	0.3	0.2	1.5	1.4	0.1	0.2	1.4	<0.1	0.2		
Number	388	334	1585	4555	230	175	12683	8213	34	163	8653	26	82	37121	

Table 6. Catch, escapement, total run, and exploitation rates of Lynn Canal sockeye salmon by age class and system, 1985.

		Brood Year and Age Class															
		1983		1982		1981		1980				1979			1978		
System		0.1	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Total
Chilkoot Lake																	
Dist. 112 Catch	N			77		678			2,167	143		58	325				3,448
	%			2.2		19.6			62.9	4.1		1.7	9.5				100.0
Dist. 115 Catch	N			72		7,975	7		121,097	1,232		2,623	19,138	10	141	30	152,325
	%			<0.1		5.2	<0.1		79.5	0.8		1.7	12.6	<0.1	0.1	<0.1	100.0
Total Catch	N			149		8,653	7		123,264	1,375		2,681	19,463	10	141	30	155,773
	%			0.1		5.6	<0.1		79.1	0.9		1.7	12.5	<0.1	0.1	<0.1	100.0
Escapement	N			47		8,358			45,984	1,779		1,661	10,927	46	224		69,026
	%			0.1		12.1			66.6	2.6		2.4	15.8	0.1	0.3		100.0
Total Run	N			196		17,011	7		169,248	3,154		4,342	30,390	56	365	30	224,799
	%			0.1		7.6	<0.1		75.3	1.4		1.9	13.5	<0.1	0.2	<0.1	100.0
Expl. Rate				0.76		0.51	1.00		0.73	0.44		0.62	0.64	0.18	0.39	1.00	0.69
Chilkat Lake																	
Dist. 112 Catch	N					69	219		583	5,982	29		6,185	20			13,087
	%					0.5	1.7		4.5	45.7	0.2		47.2	0.2			100.0
Dist. 115 Catch	N					623	10		21,761	24,373		504	87,806	346	57	23	135,503
	%					0.5	<0.1		16.1	18.0		0.4	64.8	<0.1	<0.1	<0.1	100.0
Total Catch	N					692	229		22,344	30,355	29	504	93,991	366	57	23	148,590
	%					0.5	0.2		15.0	20.4	<0.1	0.3	63.3	<0.1	<0.1	<0.1	100.0
Escapement	N			444		432	2,000		6,411	22,419	96	162	25,544	216			57,724
	%			0.8		0.7	3.5		11.1	38.8	0.2	0.3	44.3	0.4			100.1
Total Run	N			444		1,124	2,229		28,755	52,774	125	666	119,535	582	57	23	206,314
	%			0.2		0.5	1.1		13.9	25.6	0.1	0.3	57.9	0.3	<0.1	<0.1	100.0
Expl. Rate				0.00		0.62	0.10		0.78	0.58	0.23	0.76	0.79	0.63	1.00	1.00	0.72
Berners Bay/ Chilkat Mainstem																	
Dist. 115 Catch	N		333		2,528	403		101	12,646			43	124				16,178
	%		2.1		15.6	2.5		0.6	78.2			0.3	0.8				
Lace River Escapement	%	3.6	10.7	4.8	4.8	11.9		1.2	61.9	1.2							100.0
Chilkat Mainstem Escapement	%		14.7		42.6				39.7	1.5		0.7	0.7				100.0

Table 7. Average length by sex and age class of sockeye salmon catches and escapements in Lynn Canal, 1985.

		Brood Year and Age Class															
		1983		1982		1981			1980				1979			1978	
		0.1	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	
Chilkat Lake																	
District 112 Catch																	
Male	Avg. Length				555.0	396.7		601.8	528.9			610.6	550.0				
	Std. Error				25.0	12.6		5.6	3.0			1.7					
	Sample Size				2	9		20	127			200	1				
Female	Avg. Length				526.7	405.0		585.0	519.5	415.0		585.6	506.7				
	Std. Error				3.3	30.0		3.7	1.7			1.4	17.6				
	Sample Size				3	2		14	240	1		243	3				
All Fish	Avg. Length				538.0	398.2		594.9	522.8	415.0		596.9	517.5				
	Std. Error				10.7	11.0		3.9	1.5			1.2	16.5				
	Sample Size				5	11		34	367	1		443	4				
District 115 Catch																	
Male	Avg. Length				505.5	370.0		596.4	548.4			627.7	609.8	563.8	612.5	565.0	
	Std. Error				10.0			1.1	1.3			3.6	0.7	8.6	7.5		
	Sample Size				11	1		445	411			15	1468	8	2	1	
Female	Avg. Length				522.5			580.0	532.9			607.8	589.3	537.5	600.0		
	Std. Error				6.3			0.9	1.4			6.2	0.6	2.5			
	Sample Size				12			487	267			9	1424	2	1		
All Fish	Avg. Length				514.3	370.0		587.5	542.3			620.8	599.6	558.5	608.3	565.0	
	Std. Error				5.9			0.7	1.0			3.7	0.5	7.6	6.0		
	Sample Size				23	1		988	679			25	2914	10	3	1	
Escapement																	
Male	Avg. Length		357.4		502.3	372.5		607.5	512.0	405.5		645.5	610.0	511.8			
	Std. Error		13.8		7.7	3.9		2.5	2.6	15.5		5.5	1.4	15.0			
	Sample Size		8		6	42		76	252	2		2	315	4			
Female	Avg. Length				507.7	367.5		582.3	523.9			610.0	582.1	524.0			
	Std. Error				20.4	27.5		3.3	1.3			1	1.5	6.0			
	Sample Size				3	2		47	277			1	293	2			
All Fish	Avg. Length		357.4		504.1	372.3		597.9	518.2	405.5		633.7	596.5	515.8			
	Std. Error		13.8		7.7	3.9		2.3	1.4	15.5		12.3	1.1	10.0			
	Sample Size		8		9	44		123	529	2		3	608	6			
Chilkoot Lake																	
District 112 Catch																	
Male	Avg. Length		330.0		470.9			577.7	507.0			617.5	586.0				
	Std. Error				9.4			4.0	10.3			7.5	11.1				
	Sample Size		1		17			39	5			2	10				
Female	Avg. Length				470.6			559.1	490.0			600.0	558.3				
	Std. Error				9.4			3.0	35.0			1	9.4				
	Sample Size				9			55	2			1	9				
All Fish	Avg. Length		330.0		470.8			566.8	502.1			611.7	572.9				
	Std. Error				6.8			2.6	10.9			7.3	7.9				
	Sample Size		1		26			94	7			3	19				
District 115 Catch																	
Male	Avg. Length		305.0		507.0	570.0		580.8	506.3			606.8	577.9	530.0	640.0	585.0	
	Std. Error				2.5			0.5	5.7			3.6	1.5		5.0		
	Sample Size		1		135	1		1885	27			57	303	1	2	1	
Female	Avg. Length		310.0		505.2			567.2	500.0			595.2	567.5		585.0	580.0	
	Std. Error				3.7			0.5	6.9			5.3	1.3		23.3		
	Sample Size		2		63			1651	9			31	297		4	1	
All Fish	Avg. Length		308.3		506.1	570.0		574.5	504.7			603.5	572.7	530.0	603.3	591.7	
	Std. Error		1.7		2.1			0.4	4.6			2.9	0.9		18.8	9.3	
	Sample Size		3		200	1		3615	36			94	640	1	6	3	
Escapement																	
Male	Avg. Length		320.0		469.3			578.4	471.9			607.8	576.5	470.0	607.5		
	Std. Error				2.6			1.1	5.4			8.1	2.0		8.3		
	Sample Size		1		182			598	36			25	143	1	4		
Female	Avg. Length				496.3			557.6	502.9			597.9	552.0		610.0		
	Std. Error				11.7			0.9	6.7			4.7	2.0				
	Sample Size				15			480	7			14	115		1		
All Fish	Avg. Length		320.0		471.4			569.1	477.0			604.2	565.6	470.0	608.0		
	Std. Error				2.6			0.8	4.9			5.5	1.6		6.4		
	Sample Size		1		197			1078	43			39	258	1	5		

-Continued-

Table 7. Average length by sex and age class of sockeye salmon catches and escapements in Lynn Canal, 1985 (continued).

		Brood Year and Age Class																	
		1983			1982			1981			1980				1979			1978	
		0.1	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3			
Berners Bay/Chilkat Mainstem																			
District 115 Catch																			
Male	Avg. Length		487.7		580.9	507.9		580.0	586.6			565.0	581.7						
	Std. Error		9.4		2.4	8.8		8.9	1.2			1.2	11.7						
	Sample Size		13		58	21		4	472			1	6						
Female	Avg. Length		516.9		566.3	507.5		550.0	569.3			558.3	560.0						
	Std. Error		23.3		2.1	14.5		1.2	1.2			50.2	2.9						
	Sample Size		8		77	4		1	377			3	3						
All Fish	Avg. Length		496.6		571.2	505.5		574.0	577.8			573.3	572.0						
	Std. Error		10.5		1.7	7.0		9.1	0.8			24.6	7.9						
	Sample Size		22		152	28		5	999			6	10						
Lace River Escapement																			
Male	Avg. Length	290.0	457.5	336.3		457.0		600.0	580.0										
	Std. Error	8.7	7.7	8.3		11.8			10.5										
	Sample Size	3	6	4		5		1	10										
Female	Avg. Length		466.0		541.7	482.0			540.0										
	Std. Error		15.6		6.0	14.9			4.7										
	Sample Size		3		3	5			37										
All Fish	Avg. Length	290.0	460.3	336.3	541.7	469.5		600.0	548.5										
	Std. Error	8.7	6.9	8.3	6.0	9.9			4.9										
	Sample Size	3	9	4	3	10		1	47										
Chilkat Mainstem Escapement																			
Male	Avg. Length		440.3		576.6			581.8											
	Std. Error		5.0		5.1			6.3											
	Sample Size		15		19			19											
Female	Avg. Length		474.0		547.5			564.1	520.0				560.0						
	Std. Error		14.8		4.1			14.8											
	Sample Size		5		28			16	1				1						
All Fish	Avg. Length		448.8		559.3			573.7	520.0				560.0						
	Std. Error		6.0		3.8			7.6											
	Sample Size		20		47			35	1				1						

Table 8. Cumulative migratory time densities, mean dates of arrival, and variance for major age classes of sockeye salmon stocks which returned to Lynn Canal, 1985.

Catch in District 115

		Stock Group and Age Class										
Statistical Week	Dates	Chilkoot Lake				Chilkat Lake				Berners/Mainstem		
		1.2	1.3	2.3	Total	1.3	2.2	2.3	Total	0.3	1.3	Total
25	6/16-6/22	0.000	0.003	0.006	0.003	0.015	0.000	0.001	0.003	0.009	0.009	0.008
26	6/23-6/29	0.008	0.016	0.035	0.019	0.074	0.000	0.005	0.016	0.090	0.120	0.113
27	6/30-7/06	0.013	0.032	0.061	0.036	0.119	0.002	0.012	0.028	0.286	0.467	0.432
28	7/07-7/13	0.031	0.073	0.121	0.078	0.233	0.009	0.038	0.066	0.518	0.912	0.846
29	7/14-7/20	0.045	0.086	0.133	0.091	0.357	0.013	0.054	0.098	0.579	0.920	0.863
30	7/21-7/27	0.063	0.117	0.158	0.122	0.459	0.017	0.061	0.121	0.690	0.935	0.895
31	7/28-8/03	0.165	0.222	0.337	0.236	0.655	0.046	0.107	0.188	0.837	0.962	0.941
32	8/04-8/10	0.300	0.385	0.472	0.393	0.786	0.089	0.171	0.260	0.918	0.980	0.969
33	8/11-8/17	0.382	0.521	0.592	0.523	0.846	0.164	0.264	0.343	0.969	1.000	0.992
34	8/18-8/24	0.817	0.842	0.857	0.842	0.908	0.416	0.475	0.537	0.996	1.000	0.996
35	8/25-8/31	0.955	0.924	0.935	0.926	0.960	0.766	0.765	0.798	0.996	1.000	0.999
36	9/01-9/07	0.992	0.988	0.990	0.989	0.990	0.939	0.900	0.922	0.996	1.000	0.999
37	9/08-9/14	0.998	0.997	0.995	0.997	0.998	0.987	0.973	0.980	1.000	1.000	1.000
38-42	9/15-10/15	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Mean Stat. Week		33.2	32.8	32.3	32.7	30.6	34.6	34.2	33.6	29.1	27.7	27.9
Mean Calendar Date		8/15	8/13	8/9	8/12	7/30	8/25	8/22	8/18	7/18	7/8	7/10
Variance		3.4	4.9	6.3	5.1	7.1	2.4	4.8	6.6	5.0	1.9	2.7
Std. Error		1.8	2.2	2.5	2.3	2.7	1.6	2.2	2.6	2.2	1.4	1.7

Escapements

		Stock Group and Age Class									
Period Dates	Statistical Week	Chilkoot				Period Dates	Statistical Week	Chilkat			
		1.2	1.3	2.3	Total			1.3	2.2	2.3	Total
6/07-7/13	26.3	0.028	0.072	0.198	0.088	6/29-8/24	30.9	0.691	0.014	0.085	0.129
7/14-7/27	29.9	0.103	0.131	0.273	0.151	8/25-9/14	35.7	0.904	0.203	0.268	0.321
7/28-8/03	31	0.411	0.438	0.482	0.439	9/15-9/21	38.3	0.920	0.507	0.460	0.540
8/04-8/10	32	0.569	0.576	0.607	0.580	9/23-9/27	38.7	0.959	0.864	0.791	0.846
8/11-8/17	33	0.725	0.760	0.789	0.762	9/28-10/22	40.6	1.000	1.000	1.000	1.000
8/18-8/24	33.9	0.872	0.851	0.894	0.863						
8/25-10/5	35.9	1.000	1.000	1.000	1.000						
Mean Stat. Week		32.3	32.1	31.3	32.0			32.7	38.2	37.8	37.3
Mean Calendar Date		8/9	8/8	8/2	8/7			8/12	9/19	9/17	9/13
Variance		4.1	5.7	8.7	6.0			8.6	2.8	6.8	8.3
Std. Error		2.0	2.4	2.9	2.5			2.9	1.7	2.6	2.9

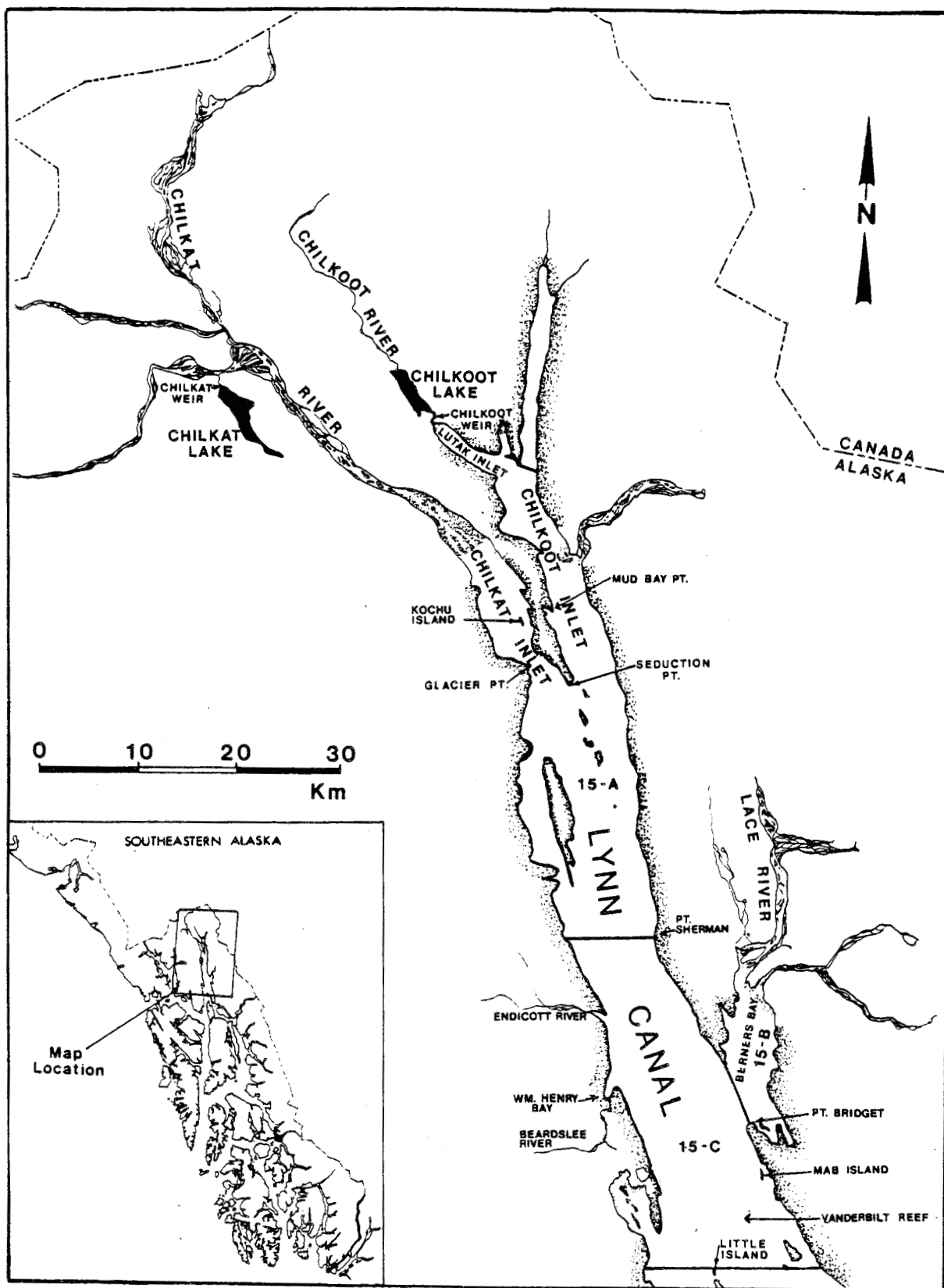


Figure 1. Map of Lynn Canal showing the fishing district and sections (e.g., 15-C) and principal spawning and rearing areas.

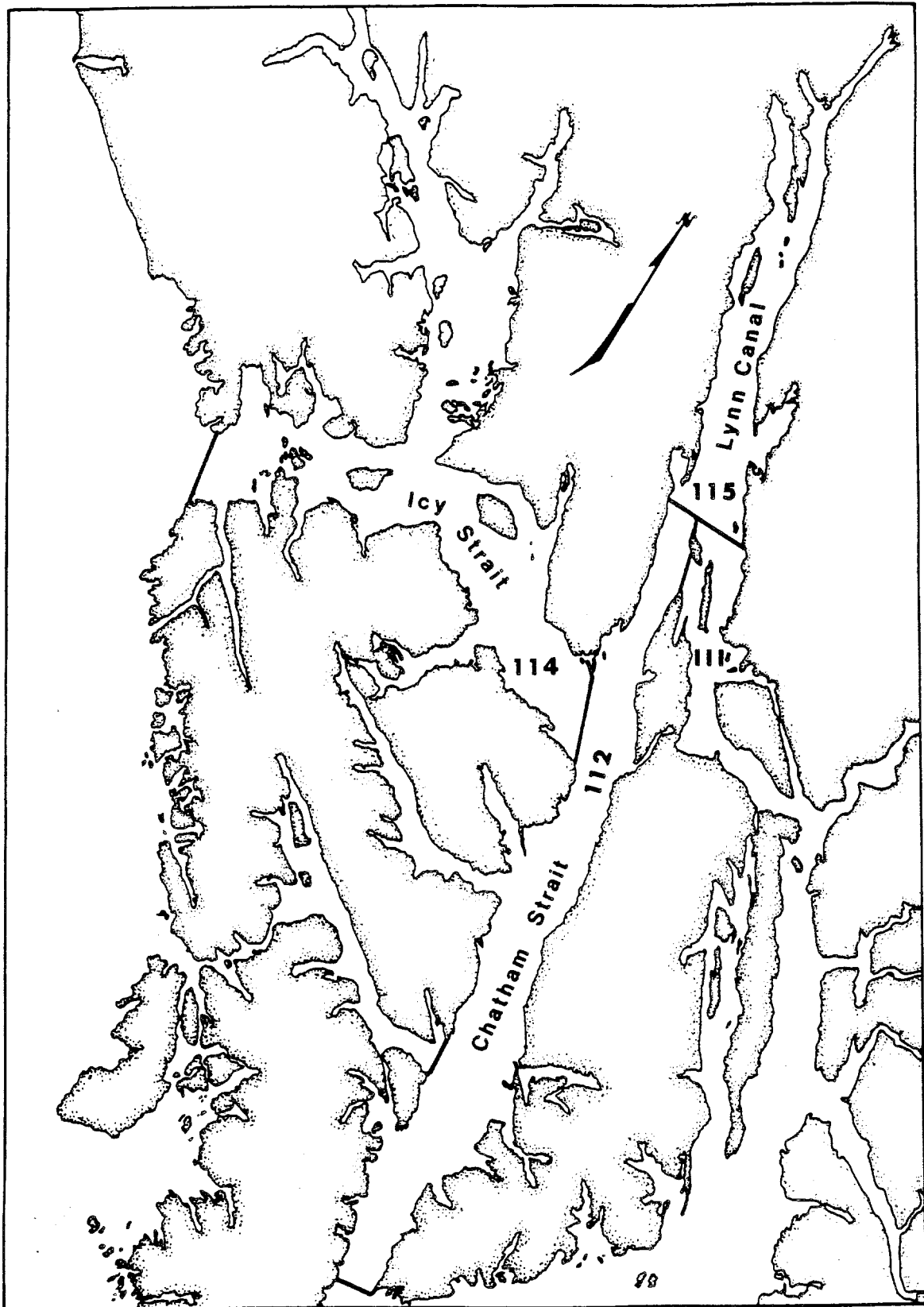


Figure 2. Map showing the District 112 fishing boundaries.

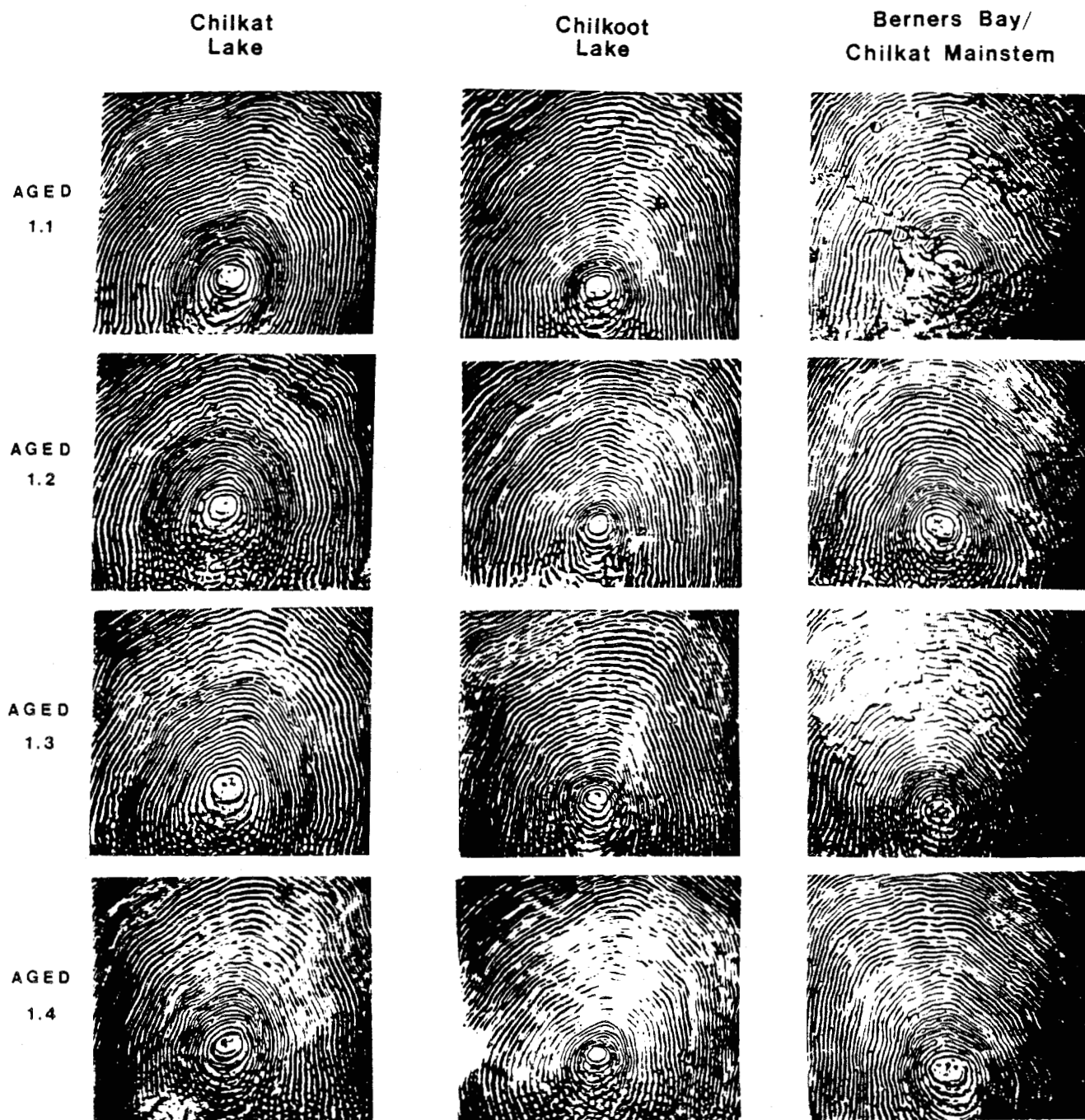


Figure 3. Photographs which illustrate typical scale patterns of sockeye salmon with one freshwater annulus from Chilkoot Lake, Chilkat Lake, and Berners Bay/Chilkat Mainstem stocks.

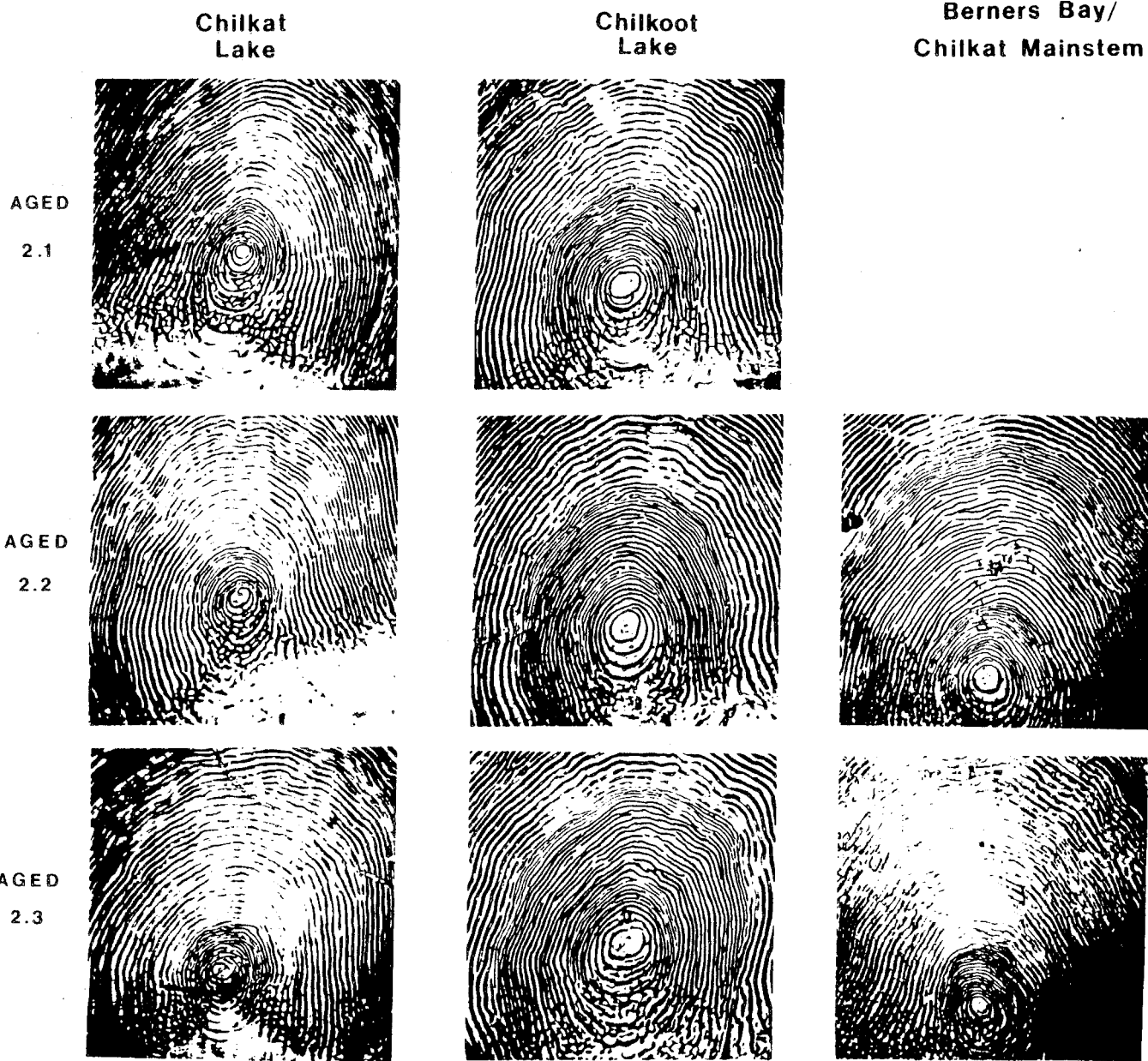


Figure 4. Photographs which illustrate typical scale patterns of sockeye salmon with two freshwater annuli from Chilkoot Lake, Chilkat Lake, and Berners Bay/Chilkat Mainstem stocks.

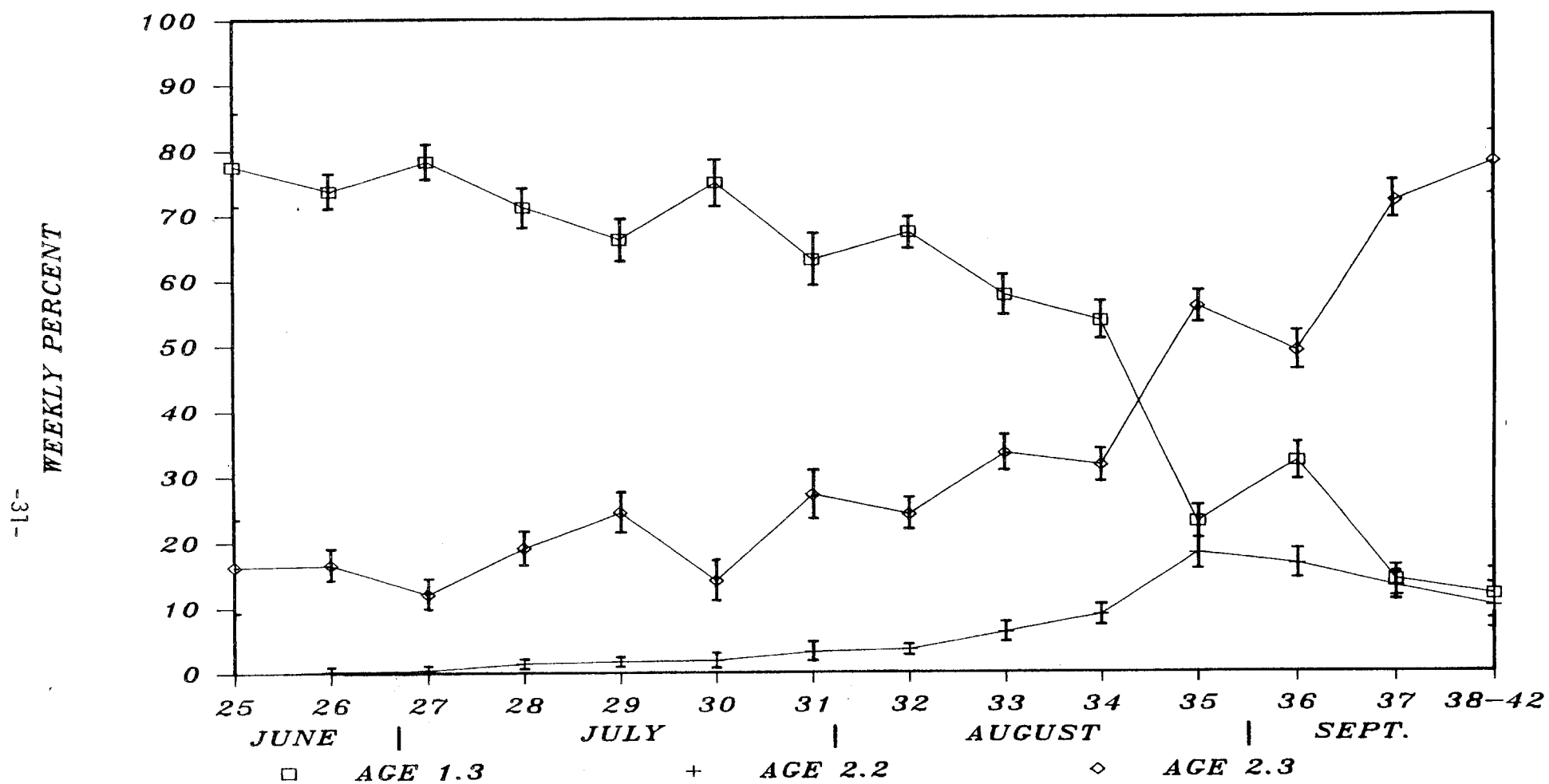


Figure 5. Weekly age composition of sockeye salmon harvested in Lynn Canal, 1985.

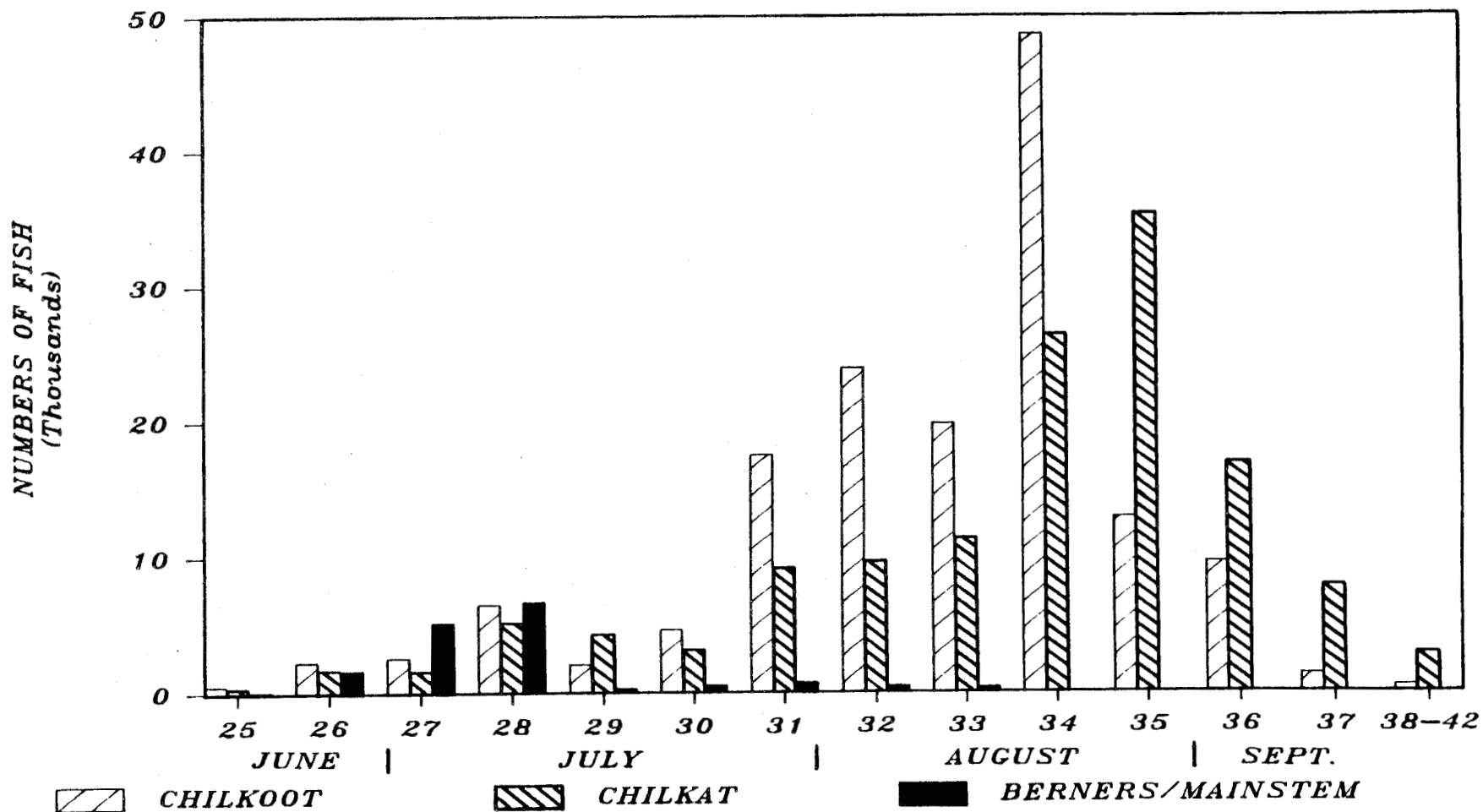


Figure 6. Catch of Chilkoot Lake, Chilkat Lake, and Berners Bay/Chilkat Mainstem sockeye salmon in the Lynn Canal drift gill net fishery, by week, 1985.

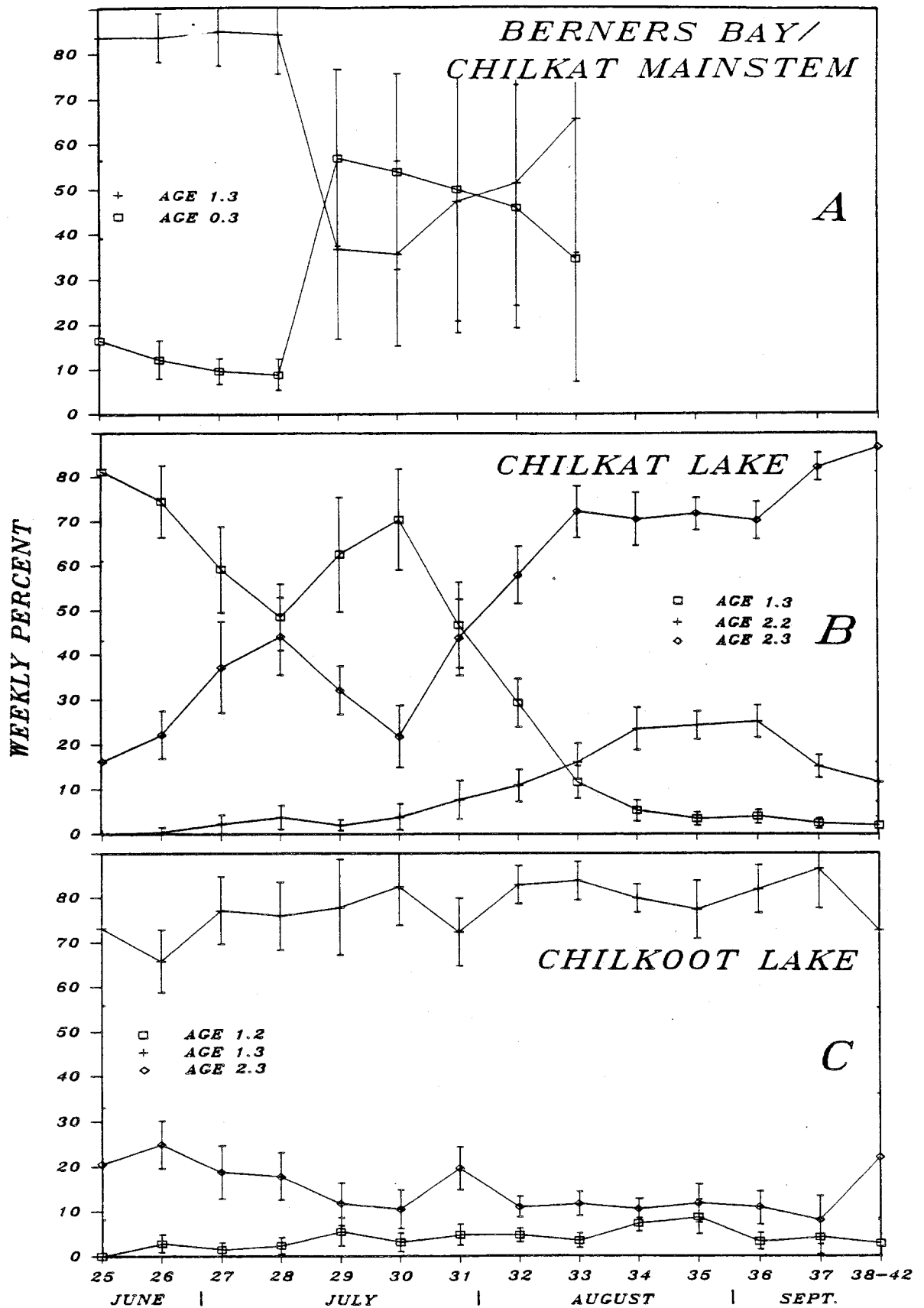


Figure 7. Weekly age composition of sockeye salmon harvested in Lynn Canal by stock, 1985.

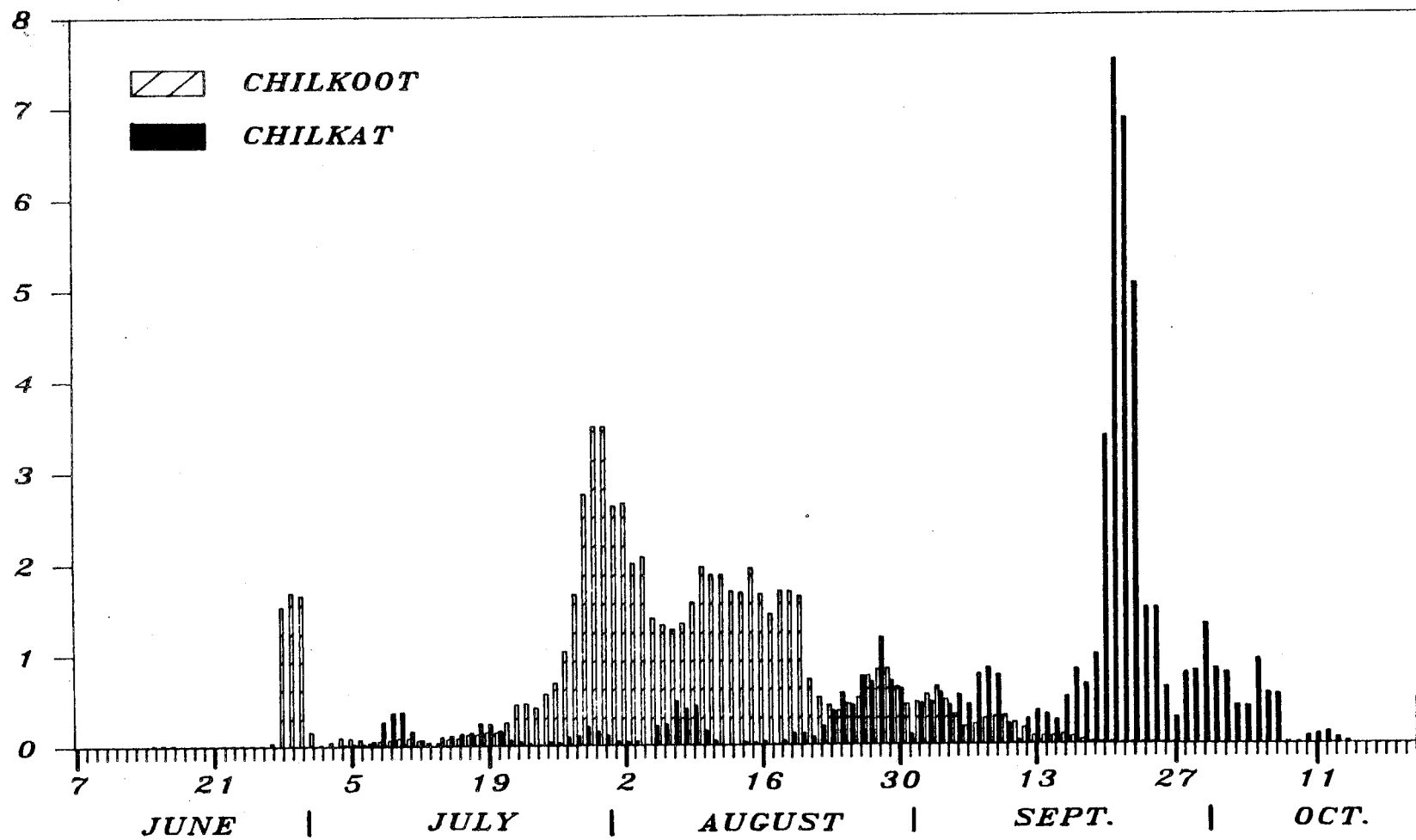


Figure 8. Daily escapement of sockeye salmon into Chilkat and Chilkoot Lakes smoothed by a moving 3-day average, 1985.

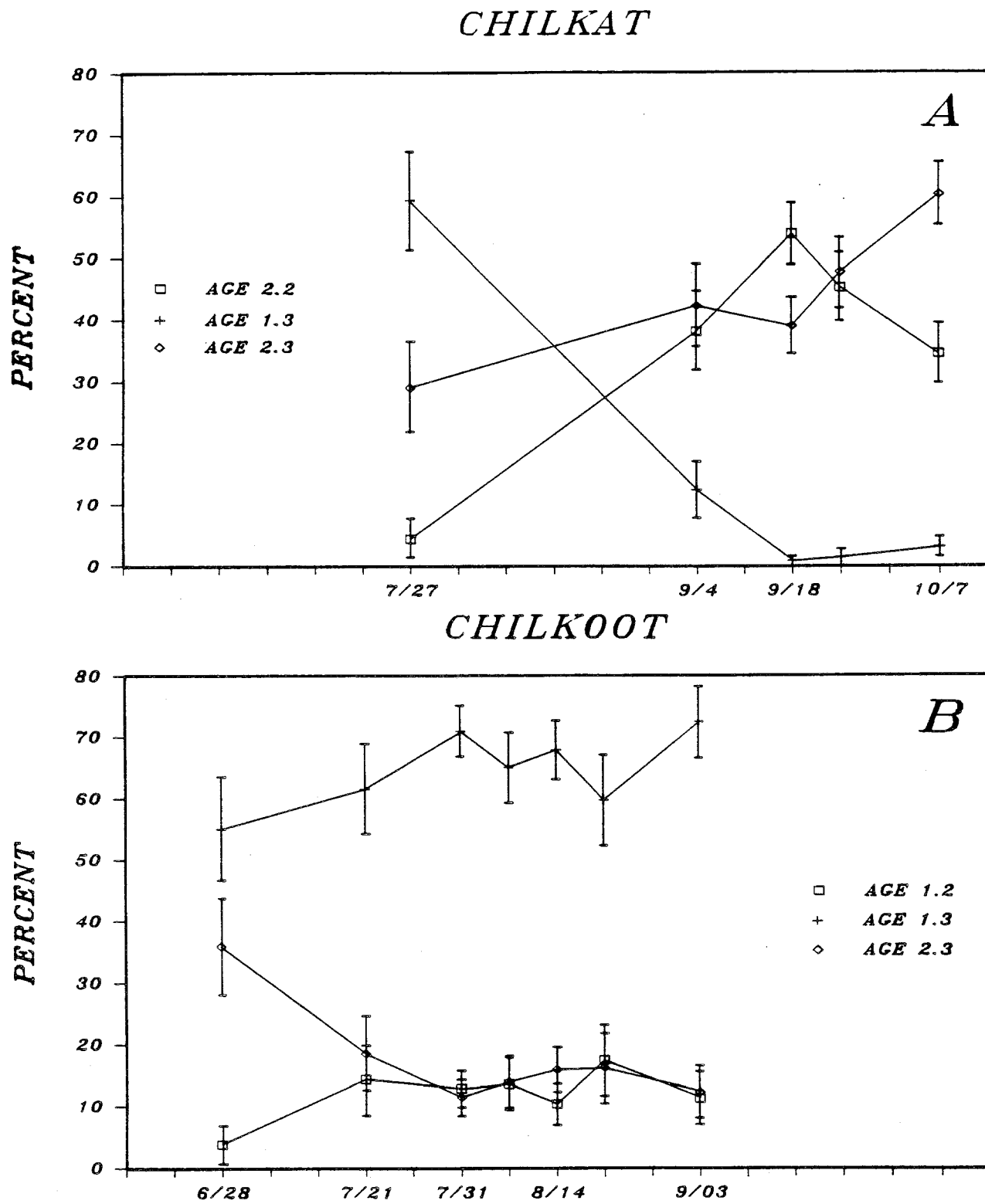


Figure 9. Period age composition of sockeye salmon escapements to Chilkat and Chilkoot Lakes in 1985.

Appendix Table 1. Age composition of sockeye salmon harvested in the Lynn Canal drift gillnet by fishing period, 1985.

Stat Week	Inclusive Dates	N	Brood Year and Age Class													Total	
			1982			1981			1980			1979		1978			
			0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	3.2	2.4	3.3		
25	6/16-6/23	98	%			2.0	1.0			77.6		2.0	16.3		1.0		100.0
			SE			1.4	1.0			4.2		1.4	3.8		1.0		
			Catch			22	11			828		22	174		11		1,068
26	6/23-6/29	835	%	0.5		3.6	1.9	0.1	0.1	73.7	0.2	3.0	16.6			0.2	100.0
			SE	0.2		0.6	0.5	0.1	0.1	1.5	0.2	0.6	1.3			0.2	
			Catch	27		205	109	7	7	4,203	14	171	950			14	5,707
27	6/30-7/06	796	%	1.1		5.3	2.0			78.3	0.4	0.9	12.1				100.0
			SE	0.4		0.8	0.5			1.5	0.2	0.3	1.2				
			Catch	106		496	189			7,353	35	83	1,133				9,395
28	7/07-7/13	781	%	0.5		3.2	2.0		0.5	71.2	1.4	1.7	19.1		0.3	0.1	100.0
			SE	0.3		0.6	0.5		0.3	1.6	0.4	0.5	1.4		0.2	0.1	
			Catch	93		586	374		94	13,023	258	305	3,490		47	23	18,293
29	7/14-7/20	686	%	0.1	0.3	2.3	2.6			66.2	1.7	2.0	24.5		0.1		100.0
			SE	0.1	0.2	0.6	0.6			1.8	0.5	0.5	1.6		0.1		
			Catch	10	19	155	174			4,392	116	135	1,626		10		6,637
30	7/21-7/27	502	%	0.6		3.4	2.2			74.9	1.8	2.6	14.1		0.2	0.2	100.0
			SE	0.3		0.8	0.7			1.9	0.6	0.7	1.6		0.2	0.2	
			Catch	49		280	181			6,183	148	214	1,167		16	16	8,254
31	7/28-8/03	517	%		0.2	1.4	3.3			63.1	3.1	1.9	27.1				100.0
			SE		0.2	0.5	0.8			2.1	0.8	0.6	2.0				
			Catch		53	371	901			17,269	848	530	7,416				27,388
32	8/04-8/10	1160	%			0.6	3.5			67.2	3.5	0.9	24.1		0.2		100.0
			SE			0.2	0.5			1.4	0.5	0.3	1.3		0.1		
			Catch			205	1,200			22,806	1,200	293	8,197		59		33,960
33	8/11-8/17	971	%			0.4	2.1			57.6	6.0	0.6	33.4				100.0
			SE			0.2	0.5			1.6	0.8	0.3	1.5				
			Catch			130	648			18,121	1,880	195	10,503				31,477
34	8/18-8/24	1101	%			0.1	4.7			53.6	8.7	1.2	31.5	0.2			100.0
			SE			0.1	0.6			1.5	0.9	0.3	1.4	0.1			
			Catch			68	3,539			40,155	6,534	885	23,616	136			74,933
35	8/25-8/31	998	%	0.1			2.6			22.9	18.1	0.2	55.8	0.2			100.0
			SE	0.1			0.5			1.3	1.2	0.1	1.6	0.1			
			Catch	48			1,256			11,059	8,741	97	26,899	97			48,197
36	9/01-9/07	967	%				1.3			32.1	16.4	0.8	48.8	0.3	0.2		100.0
			SE				0.4			1.5	1.2	0.3	1.6	0.2	0.1		
			Catch				355			8,458	4,338	218	12,878	82	55		26,384
37	9/08-9/14	883	%			0.1	0.6	0.1		14.0	12.9	0.1	71.7	0.5			100.0
			SE			0.1	0.3	0.1		1.2	1.1	0.1	1.5	0.2			
			Catch			10	52	10		1,276	1,174	10	6,516	41			9,089
38-42	9/15-10/15	273	%				0.4			11.7	9.9	0.4	77.7				100.0
			SE				0.4			2.0	1.8	0.4	2.5				
			Catch				12			378	319	12	2,503				3,224
Total	6/16-10/15	10,568	Percent	0.1	<0.1	0.8	3.0	<0.1	<0.1	51.2	8.4	1.0	35.2	0.1	0.1	<0.1	100.0
			Std. Er.	<0.1	<0.1	0.1	0.2	<0.1	<0.1	0.6	0.3	0.1	0.5	<0.1	<0.1	<0.1	
			Catch	333	72	2,528	9,001	17	101	155,504	25,605	3,170	107,068	356	198	53	304,006

Appendix Table 2. Estimated contribution of Lynn Canal sockeye salmon stocks to the District 115 drift gillnet fishery, by fishing period, 1985.

Stock and Freshwater Age Class																	
Stat Week	Chilkoot Lake				Chilkat Lake				Berners Bay/Chilkat Mainstem				Total Lynn Canal				
	1.	2.	3.	Total	1.	2.	3.	Total	0.	1.	2.	Total	0.	1.	2.	3.	Total
25	N 1/	37.4	10.9	48.3	31.4	6.1		37.4	2.0	10.3		12.3	2	79	17		98
	Prop. 2/	0.473	0.643	0.493	0.397	0.357		0.382	1.000	0.130		0.125	0.021	0.806	0.173		
	SE 3/	0.082	0.117		0.087	0.117			0.000	0.080							
	Catch	407	119	526	342	66		408	22	112		134	22	861	185		1,068
26	N 1/	248.6	85.2	2.0	335.8	195.5	56.8	252.3	35.0	211.9		246.9	35	656	142	2	835
	Prop. 2/	0.379	0.600	1.000	0.402	0.298	0.400	0.302	1.000	0.323		0.296	0.042	0.786	0.170	0.002	
	SE 3/	0.032	0.041	0.000		0.037	0.041		0.000	0.043							
	Catch	1,697	583	14	2,294	1,337	388	1,725	239	1,449		1,688	239	4,483	971	14	5,707
27	N 1/	178.3	41.2		219.5	84.0	54.5	138.4	51.0	383.7	3.4	438.1	51	646	99		796
	Prop. 2/	0.276	0.416		0.276	0.130	0.550	0.174	1.000	0.594	0.034	0.551	0.064	0.812	0.124		
	SE 3/	0.030	0.067			0.027	0.066		0.000	0.038	0.027						
	Catch	2,103	486		2,589	991	642	1,633	602	4,531	40	5,173	602	7,625	1,168		9,395
28	N 1/	224.1	52.0		276.1	111.7	106.8	1.0	219.5	33.0	249.2	3.2	285.5	33	585	162	1
	Prop. 2/	0.383	0.321		0.353	0.191	0.659	1.000	0.281	1.000	0.426	0.020	0.366	0.042	0.749	0.207	0.001
	SE 3/	0.034	0.050			0.030	0.050	0.000		0.000	0.041	0.017					
	Catch	5,245	1,218		6,463	2,615	2,501	23	5,139	773	5,842	76	6,691	773	13,702	3,795	23
29	N 1/	182.5	28.8		211.3	294.3	152.2	446.5	17.0	11.2		28.2	17	488	181		686
	Prop. 2/	0.375	0.159		0.308	0.603	0.841	0.651	1.000	0.023		0.041	0.025	0.711	0.264		
	SE 3/	0.055	0.029			0.091	0.029		0.000	0.069							
	Catch	1,768	278		2,046	2,844	1,474	4,318	165	108		273	165	4,720	1,752		6,637
30	N 1/	246.4	32.2	1.0	279.6	142.4	48.4	190.8	20.0	11.2	0.5	31.7	20	400	81	1	502
	Prop. 2/	0.616	0.397	1.000	0.557	0.356	0.597	0.380	1.000	0.028	0.006	0.063	0.040	0.797	0.161	0.002	
	SE 3/	0.043	0.073	0.000		0.061	0.072		0.000	0.043	0.018						
	Catch	4,051	528	16	4,595	2,342	795	3,137	329	185	8	522	329	6,578	1,331	16	8,254
31	N 1/	262.7	67.4		330.1	84.3	88.6	172.9	7.0	7.1		14.1	7	354	156		517
	Prop. 2/	0.742	0.432		0.639	0.238	0.568	0.334	1.000	0.020		0.027	0.014	0.685	0.302		
	SE 3/	0.370	0.040			0.047	0.040		0.000	0.030							
	Catch	13,921	3,571		17,492	4,457	4,693	9,150	371	375		746	371	18,753	8,264		27,388
32	N 1/	718.8	95.3		814.1	102.9	227.7	330.6	7.0	8.3		15.3	7	830	323		1160
	Prop. 2/	0.866	0.295		0.702	0.124	0.705	0.285	1.000	0.010		0.013	0.006	0.716	0.278		
	SE 3/	0.018	0.026			0.024	0.026		0.000	0.015							
	Catch	21,044	2,792		23,836	3,012	6,664	9,676	205	243		448	205	24,299	9,456		33,960

-Continued-

Appendix Table 2. Estimated contribution of Lynn Canal sockeye salmon stocks to the District 115 drift gillnet fishery, by fishing period, 1985 (continued).

Stock and Freshwater Age Class																	
Stat Week	Chilkoot Lake				Chilkat Lake				Berners Bay/Chilkat Mainstem				Total Lynn Canal				
	1.	2.	3.	Total	1.	2.	3.	Total	0.	1.	2.	Total	0.	1.	2.	3.	Total
33	N 1/	537.0	72.6	609.6	40.4	309.4		349.8	4.0	7.6		11.6	4	585	382		971
	Prop. 2/	0.918	0.190	0.628	0.069	0.810		0.360	1.000	0.013		0.012	0.004	0.602	0.393		
	SE 3/	0.016	0.021		0.018	0.021			0.000	0.011							
	Catch	17,409	2,355	19,764	1,308	10,028		11,336	130	247		377	130	18,964	12,383		31,477
34	N 1/	634.0	80.2	714.2	21.0	362.8	2.0	385.8	1.0			1.0	1	655	443	2	1101
	Prop. 2/	0.968	0.181	0.649	0.032	0.819	1.000	0.350	1.000			0.001	0.001	0.595	0.402	0.002	
	SE 3/	0.007	0.020		0.007	0.020	0.000		0.000								
	Catch	43,153	5,462	48,615	1,426	24,688	136	26,250	68			68	68	44,579	30,150	136	74,933
35	N 1/	230.3	35.4	265.7	26.7	702.6	2.0	731.3	1.0			1.0	1	257	738	2	998
	Prop. 2/	0.896	0.048	0.266	0.104	0.952	1.000	0.733	1.000			0.001	0.001	0.258	0.739	0.002	
	SE 3/	0.021	0.011		0.021	0.011	0.000		0.000								
	Catch	11,121	1,712	12,833	1,291	33,928	97	35,316	48			48	48	12,412	35,640	97	48,197
36	N 1/	305.5	44.3	349.8	25.5	588.7	3.0	617.2						331	633	3	967
	Prop. 2/	0.923	0.070	0.362	0.077	0.930	1.000	0.638						0.342	0.655	0.003	
	SE 3/	0.016	0.013		0.016	0.013	0.000										
	Catch	8,335	1,215	9,550	696	16,056	82	16,834						9,031	17,271	82	26,384
37	N 1/	112.8	9.7	123.6	17.2	738.3	3.0	758.4	1.0			1.0	1	130	748	4	883
	Prop. 2/	0.868	0.013	0.244	0.132	0.987	0.756	0.859	1.000			0.001	0.001	0.147	0.847	0.005	
	SE 3/	0.032	0.009	0.000	0.032	0.009	0.000		0.000								
	Catch	1,161	100	1,271	177	7,600	31	7,808	10			10	10	1,338	7,700	41	9,089
38-42	N 1/	29.8	8.4	38.1	4.3	230.6		234.9						34	239		273
	Prop. 2/	0.876	0.035	0.140	0.124	0.965		0.860						0.125	0.875		
	SE 3/	0.060	0.015		0.060	0.015											
	Catch	352	99	451	50	2,723		2,773						402	2,822		3,224
Total	N 1/	3948.1	663.5	4615.7	1181.4	3673.4	11.0	4865.7	179.0	900.5	7.1	1086.6	179	6030	4344	15	10568
	Prop. 2/	0.786	0.154	0.501	0.136	0.845	0.902	0.446	1.000	0.078	0.001	0.053	0.010	0.552	0.437	0.001	
	Catch	131,767	20,518	152,325	22,888	112,246	369	135,503	2,962	13,092	124	16,178	2,962	167,747	132,888	409	304,006

1/ Sample size after correcting for misclassification.

2/ Stock proportion of total Lynn Canal sample within freshwater age class.

3/ Standard error due to stock allocation within a freshwater age class only. Standard error accounting for catch, age composition, and stock composition is presented in following three appendix tables.

Appendix Table 3. Age composition of sockeye salmon returning to Chilkooot Lake and harvested in Lynn Canal by fishing period, 1985.

Stat Week	Sex	Comp.	Brood Year and Age Class										Total	
			1982		1981		1980		1979		1978			
			1.1	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3		
25	Male	58.7	Percent				73.2		4.2	20.5		2.1		100.0
	Female	41.3	Std. Error 1/ Catch				8.8 385		2.9 22	6.3 108		2.1 11		14.2 526
26	Male	58.0	Percent		2.8	0.3	65.7	0.3	5.4	24.8			0.6	100.0
	Female	42.0	Std. Error 1/ Catch		0.9 64	0.3 7	3.3 1,508	0.3 7	1.2 125	2.6 569			0.4 14	6.6 2,294
27	Male	49.4	Percent		1.4		77.1		2.7	18.8				100.0
	Female	50.6	Std. Error 1/ Catch		0.8 36		3.7 1,996		1.1 71	2.9 486				9.4 2,589
28	Male	56.8	Percent		2.3		75.9	1.1	2.9	17.8				100.0
	Female	43.2	Std. Error 1/ Catch		0.9 149		3.6 4,908	0.6 70	1.0 188	2.5 1,148				7.8 6,463
29	Male	50.9	Percent	0.9	5.4		77.8	1.8	2.2	11.8				100.0
	Female	49.1	Std. Error 1/ Catch	0.7 19	1.6 111		5.1 1,592	0.9 37	1.0 46	2.2 241				13.0 2,046
30	Male	54.0	Percent		3.1		82.4	0.7	2.6	10.4		0.3	0.3	100.0
	Female	46.0	Std. Error 1/ Catch		1.0 142		4.2 3,788	0.5 33	1.0 121	2.0 479		0.3 16	0.3 16	6.6 4,595
31	Male	51.9	Percent	0.3	4.6		72.3	0.9	2.3	19.5				100.0
	Female	48.1	Std. Error 1/ Catch	0.3 53	1.2 812		3.6 12,649	0.5 157	0.8 407	2.3 3,414				4.5 17,492
32	Male	52.1	Percent		4.5		82.8	0.6	0.9	10.9		0.2		100.0
	Female	47.9	Std. Error 1/ Catch		0.7 1,082		2.0 19,736	0.3 143	0.3 226	1.1 2,590		0.2 59		2.4 23,836
33	Male	51.6	Percent		3.3		83.8	0.3	1.0	11.6				100.0
	Female	48.4	Std. Error 1/ Catch		0.7 648		2.0 16,566	0.2 62	0.4 195	1.3 2,293				2.7 19,764
34	Male	55.7	Percent		7.1		79.8	0.8	1.8	10.4				100.0
	Female	44.3	Std. Error 1/ Catch		1.0 3,468		1.6 38,800	0.3 392	0.5 885	1.2 5,070				2.3 48,615
35	Male	54.3	Percent		8.6		77.3	1.6	0.8	11.7				100.0
	Female	45.7	Std. Error 1/ Catch		1.7 1,102		3.0 9,922	0.8 208	0.5 97	2.0 1,504				5.7 12,833
36	Male	56.3	Percent		3.1		81.9	1.3	2.3	10.9		0.6		100.0
	Female	43.7	Std. Error 1/ Catch		0.9 297		2.4 7,820	0.6 123	0.8 218	1.7 1,037		0.4 55		4.6 9,550
37	Male	58.9	Percent		4.1		86.5		0.8	7.9	0.8			100.0
	Female	41.1	Std. Error 1/ Catch		1.8 52		4.2 1,099		0.8 10	2.4 100	0.8 10			9.7 1,271
38-42	Male	70.0	Percent		2.7		72.7		2.7	22.0				100.0
	Female	30.0	Std. Error 1/ Catch		2.7 12		8.5 328		2.7 12	6.8 99				16.2 451
Total	Male	54.1	Percent	<0.1	5.2	<0.1	79.5	0.8	1.7	12.6	<0.1	0.1	<0.1	100.0
	Female	45.9	Std. Error 1/ Catch	<0.1 72	0.4 7,975	<0.1 7	0.9 121,097	0.2 1,232	0.2 2,623	0.6 19,138	<0.1 10	<0.1 141	<0.1 30	1.3 152,325

1/ Standard error of percent is presented for:

- (1) individual age classes as a result of the stock age composition and correction for misclassification, and
- (2) the total for each period which is a product of the Lynn Canal age composition, catch, and stock composition as per Appendix C in Oliver et al (1985).

Appendix Table 4. Age composition of sockeye salmon returning to Chilkat Lake and harvested in Lynn Canal, by fishing period, 1985.

Stat Week	Sex	Comp.		Brood Year and Age Class								Total	
				1981		1980		1979		1978			
				1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4		3.3
25	Male	55.9	Percent	2.7		81.1			16.2				100.0
	Female	44.1	Std. Error Catch 1/	2.7 11		9.6 331			12.9 66				19.2 408
26	Male	39.8	Percent	1.3		74.6	0.4	1.7	22.1				100.0
	Female	60.2	Std. Error Catch 1/	0.7 22		3.9 1,286	0.4 7	0.8 29	2.8 381				9.9 1,725
27	Male	43.0	Percent	0.7		59.2	2.1	0.7	37.2				100.0
	Female	57.0	Std. Error Catch 1/	0.7 12		4.5 967	1.2 35	0.7 12	4.8 607				13.8 1,633
28	Male	47.9	Percent	0.5		48.5	3.7	1.9	44.1		0.9	0.4	100.0
	Female	52.1	Std. Error Catch 1/	0.5 26		3.7 2,493	1.3 188	0.9 96	4.0 2,266		0.6 47	0.4 23	9.2 5,139
29	Male	44.4	Percent	1.4		62.5	1.8	1.9	32.1		0.2		100.0
	Female	55.6	Std. Error Catch 1/	0.6 60		6.1 2,700	0.6 79	0.7 84	2.4 1,385		0.2 10		10.0 4,318
30	Male	51.2	Percent	1.2		70.4	3.7	3.0	21.7				100.0
	Female	48.8	Std. Error Catch 1/	0.8 39		5.4 2,210	1.4 115	1.3 93	3.4 680				13.2 3,137
31	Male	52.8	Percent	0.7		46.7	7.6	1.3	43.7				100.0
	Female	47.2	Std. Error Catch 1/	0.6 65		4.4 4,269	2 691	0.9 123	4.2 4,002				10.5 9,150
32	Male	45.4	Percent	1.1		29.4	10.9	0.7	57.9				100.0
	Female	54.6	Std. Error Catch 1/	0.6 105		2.6 2,840	1.7 1,057	0.5 67	3.1 5,607				7.1 9,676
33	Male	50.7	Percent			11.5	16.0		72.4				100.0
	Female	49.3	Std. Error Catch 1/			1.7 1,308	2.0 1,818		2.8 8,210				5.0 11,336
34	Male	46.3	Percent	0.3		5.2	23.4		70.7	0.5			100.0
	Female	53.7	Std. Error Catch 1/	0.3 71		1.1 1,355	2.2 6,142		2.7 18,546	0.4 136			4.2 26,250
35	Male	46.2	Percent	0.4		3.2	24.2		71.9	0.3			100.0
	Female	53.8	Std. Error Catch 1/	0.2 154		0.7 1,137	1.6 8,533		1.8 25,395	0.2 97			2.1 35,316
36	Male	57.8	Percent	0.3		3.8	25.0		70.3	0.5			100.0
	Female	42.2	Std. Error Catch 1/	0.2 58		0.8 638	1.8 4,215		2.1 11,841	0.3 82			2.6 16,834
37	Male	65.2	Percent		0.1	2.3	15.0		82.2	0.4			100.0
	Female	34.8	Std. Error Catch 1/		0.1 10	0.5 177	1.3 1,174		1.6 6,416	0.2 31			1.6 7,808
38-42	Male	56.2	Percent			1.8	11.5		86.7				100.0
	Female	43.8	Std. Error Catch 1/			0.9 50	2.1 319		2.6 2,404				2.6 2,773
Total	Male	49.8	Percent	0.5	<0.1	16.1	18.0	0.4	64.8	0.3	<0.1	<0.1	100.0
	Female	50.2	Std. Error Catch	0.1 623	<0.1 10	0.6 21,761	0.7 24,373	0.1 504	0.9 87,806	0.1 346	<0.1 57	<0.1 23	1.5 135,503

1/ Standard error of percent is presented for:

- (1) individual age classes as a result of the stock age composition and correction for misclassification, and
- (2) the total for each period which is a product of the Lynn Canal age composition, catch, and stock composition as per Appendix C in Oliver et al. (1985).

Appendix Table 5. Age composition of sockeye salmon bound for Berners Bay/Chilkat Mainstem and harvested in Lynn Canal, by fishing period, 1985.

		Brood Year and Age Class									
Stat Week	Sex	Comp.			1981		1980		1979		Total
					0.2	0.3	1.2	0.4	1.3	1.4	
25	Male	50.0	Percent			16.4			83.6		100.0
	Female	50.0	Std. Error 1/ Catch			11.0 22			12.9 112		52.4 134
26	Male	60.2	Percent		1.6	12.1		0.4	83.5	1.0	100.0
	Female	39.8	Std. Error 1/ Catch		0.8 27	2.1 205	0.8 23	0.4 7	4.3 1,409	0.6 17	11.6 1,688
27	Male	52.7	Percent		2.0	9.6	2.7		84.9		100.0
	Female	47.3	Std. Error 1/ Catch		0.7 106	1.4 496	0.8 141		3.7 4,390		5.8 5,173
28	Male	58.9	Percent		1.4	8.8	3.0	1.4	84.0	0.3	100.0
	Female	41.1	Std. Error 1/ Catch		0.7 93	1.7 586	1.0 199	0.7 94	4.1 5,622	0.3 21	8.7 6,691
29	Male	40.7	Percent		3.7	56.8	1.1		36.6	1.8	100.0
	Female	59.3	Std. Error 1/ Catch		3.6 10	9.5 155	2.0 3		9.6 100	2.6 5	119.5 273
30	Male	42.6	Percent		9.4	53.6			35.4		100.0
	Female	57.4	Std. Error 1/ Catch		5.9 49	10.0 280			9.7 185		55.9 522
31	Male	43.5	Percent			49.7	3.2		47.1		100.0
	Female	56.5	Std. Error 1/ Catch			13.8 371	4.9 24		13.9 351		76.5 746
32	Male	53.8	Percent			45.8	2.9		51.3		100.0
	Female	46.2	Std. Error 1/ Catch			13.2 205	4.4 13		13.3 230		83.4 448
33	Male	56.3	Percent			34.5			65.5		100.0
	Female	43.8	Std. Error 1/ Catch			14.6 130			14.6 247		58.5 377
34	Male	50.0	Percent			100.0					100.0
	Female	50.0	Std. Error 1/ Catch			68					95.1 68
35	Male	80.0	Percent	100.0							100.0
	Female	20.0	Std. Error 1/ Catch		48						99.9 48
36	Male	0.0	Percent								
	Female	0.0	Std. Error 1/ Catch								
37	Male	50.0	Percent			100.0					100.0
	Female	50.0	Std. Error 1/ Catch			10					105.9 10
38-42	Male	0.0	Percent								
	Female	0.0	Std. Error 1/ Catch								
Total	Male	49.8	Percent	/1	2.1	15.6	2.5	0.6	78.2	0.3	100.0
	Female	50.2	Std. Error 1/ Catch		0.4 333	1.2 2,528	0.6 403	0.3 101	2.3 12,646	0.2 43	0.3 124 16,178

1/ Standard error of percent is presented for:

- (1) individual age classes as a result of the stock age composition and correction for misclassification, and
- (2) the total for each period which is a product of the Lynn Canal age composition, catch, and stock composition as per Appendix C in Oliver et al. (1985).

Appendix Table 6. Age composition of sockeye salmon returning to Chilkat Lake and harvested in District 112, 1985.

	Brood Year and Age Class							
	1981		1980			1979		
	1.2	2.1	1.3	2.2	3.1	2.3	3.2	Total
Statistical Weeks	27	- 30	(June 30 - July 27)					
Sample Number	1	1	8	2		5		17
Percent	5.9	5.9	47.1	11.8		29.4		100.0
Std. Error	5.9	5.9	12.5	8.1		11.4		
Number	24	24	189	48		119		404
Statistical Week	31	(July 28 - August 3)						
Sample Number			3	3		8		14
Percent			21.4	21.4		57.1		100.0
Std. Error			11.4	11.4		13.7		
Number			32	32		86		150
Statistical Week	32	(August 4 - 10)						
Sample Number		2	2	37		25		66
Percent		3.0	3.0	56.1		37.9		100.0
Std. Error		2.1	2.1	6.2		6.0		
Number		154	154	2,846		1,923		5,077
Statistical Week	33	(August 11 - 17)						
Sample Number	1		4	57	1	80		143
Percent	0.7		2.8	39.9	0.7	55.9		100.0
Std. Error	0.7		1.4	4.1	0.7	4.2		
Number	29		117	1,673	29	2,348		4,196
Statistical Week	34	(August 18 - 24)						
Sample Number	2	7	13	244		273	4	543
Percent	0.4	1.3	2.4	44.9		50.3	0.7	100.0
Std. Error	0.3	0.5	0.7	2.1		2.1	0.4	
Number	10	35	66	1,230		1,377	20	2,738
Statistical Weeks	35	- 36	(August 25 - Sept. 7)					
Sample Number	1	1	4	24		52		82
Percent	1.2	1.2	4.9	29.3		63.4		100.0
Std. Error	1.2	1.2	2.4	5.1		5.4		
Number	6	6	25	153		332		522
Combined Periods (Percentages are weighted by period catches)								
Sample Number	5	11	34	367	1	443	4	865
Percent	0.5	1.7	4.5	45.7	0.2	47.2	0.2	100.0
Std. Error	0.3	0.9	1.0	2.8	0.2	2.8	0.1	
Number	69	219	583	5,982	29	6,185	20	13,087

Appendix Table 7. Age composition of sockeye salmon returning to Chilkoot Lake and harvested in District 112, 1985.

Brood Year and Age Class							
	1982	1981	1980		1979		
	1.1	1.2	1.3	2.2	1.4	2.3	Total
Statistical Weeks	27	- 30	(June 30 - July 27)				
Sample Number		3	22	1	1	2	29
Percent		10.3	75.9	3.4	3.4	6.9	100.0
Std. Error		5.8	8.1	3.4	3.4	4.8	
Number		71	522	24	24	47	688
Statistical Week	31	(July 28 - August 3)					
Sample Number		5	17	3		4	29
Percent		17.2	58.6	10.3		13.8	100.0
Std. Error		7.1	9.3	5.8		6.5	
Number		54	183	32		43	312
Statistical Week	32	(August 4 - 10)					
Sample Number	1	4	12	1		1	19
Percent	5.3	21.1	63.2	5.3		5.3	100.0
Std. Error	5.3	9.6	11.4	5.3		5.3	
Number	77	308	923	77		77	1,461
Statistical Week	33	(August 11 - 17)					
Sample Number		7	13		1	4	25
Percent		28.0	52.0		4.0	16.0	100.0
Std. Error		9.2	10.2		4.0	7.5	
Number		206	382		29	117	734
Statistical Week	34	(August 18 - 24)					
Sample Number		4	26	2	1	7	40
Percent		10.0	65.0	5.0	2.5	17.5	100.0
Std. Error		4.8	7.6	3.5	2.5	6.1	
Number		20	131	10	5	35	202
Statistical Weeks	35	- 36	(August 25 - Sept. 7)				
Sample Number		3	4			1	8
Percent		37.5	50.0			12.5	100.0
Std. Error		18.3	18.9			12.5	
Number		19	26			6	51
Combined Periods (Percentages are weighted by period catches)							
Sample Number	1	26	94	7	3	19	150
Percent	2.2	19.6	62.8	4.1	1.7	9.5	100.0
Std. Error	2.2	4.7	5.6	2.4	1.1	3.0	
Number	77	677	2,166	143	58	327	3,448

Appendix Table 8. Daily sockeye salmon counts and associated statistics from Chilkat Lake Weir, 1985.

Date		Daily Count	Cumulative Count	Daily Proportion of Total	Cumulative Proportion of Total
June	29	7	7	0.0001	0.0001
June	30	8	15	0.0001	0.0003
July	1	0	15	0.0000	0.0003
July	2	0	15	0.0000	0.0003
July	3	0	15	0.0000	0.0003
July	4	0	15	0.0000	0.0003
July	5	90	105	0.0016	0.0018
July	6	0	105	0.0000	0.0018
July	7	0	105	0.0000	0.0018
July	8	192	297	0.0033	0.0051
July	9	623	920	0.0108	0.0159
July	10	289	1209	0.0050	0.0209
July	11	201	1410	0.0035	0.0244
July	12	12	1422	0.0002	0.0246
July	13	0	1422	0.0000	0.0246
July	14	0	1422	0.0000	0.0246
July	15	320	1742	0.0055	0.0302
July	16	48	1790	0.0008	0.0310
July	17	53	1843	0.0009	0.0319
July	18	340	2183	0.0059	0.0378
July	19	344	2527	0.0060	0.0438
July	20	36	2563	0.0006	0.0444
July	21	123	2686	0.0021	0.0465
July	22	37	2723	0.0006	0.0472
July	23	0	2723	0.0000	0.0472
July	24	53	2776	0.0009	0.0481
July	25	1	2777	0.0000	0.0481
July	26	92	2869	0.0016	0.0497
July	27	28	2897	0.0005	0.0502
July	28	192	3089	0.0033	0.0535
July	29	134	3223	0.0023	0.0558
July	30	321	3544	0.0056	0.0614
July	31	17	3561	0.0003	0.0617
August	1	12	3573	0.0002	0.0619
August	2	136	3709	0.0024	0.0643
August	3	0	3709	0.0000	0.0643
August	4	23	3732	0.0004	0.0647
August	5	35	3767	0.0006	0.0653
August	6	600	4367	0.0104	0.0757
August	7	63	4430	0.0011	0.0767
August	8	820	5250	0.0142	0.0910
August	9	327	5577	0.0057	0.0966
August	10	161	5738	0.0028	0.0994
August	11	0	5738	0.0000	0.0994
August	12	0	5738	0.0000	0.0994
August	13	15	5753	0.0003	0.0997
August	14	0	5753	0.0000	0.0997
August	15	112	5865	0.0019	0.1016
August	16	0	5865	0.0000	0.1016
August	17	30	5895	0.0005	0.1021
August	18	18	5913	0.0003	0.1024
August	19	112	6025	0.0019	0.1044
August	20	274	6299	0.0047	0.1091
August	21	0	6299	0.0000	0.1091
August	22	0	6299	0.0000	0.1091
August	23	635	6934	0.0110	0.1201
August	24	516	7450	0.0089	0.1291
August	25	534	7984	0.0093	0.1383
August	26	244	8228	0.0042	0.1425
August	27	1475	9703	0.0256	0.1681
August	28	346	10049	0.0060	0.1741
August	29	1727	11776	0.0299	0.2040
August	30	11	11787	0.0002	0.2042
August	31	97	11884	0.0017	0.2059

Appendix Table 8. Daily sockeye salmon counts and associated statistics from Chilkat Lake Weir, 1985 (continued).

Date	Daily Count	Cumulative Count	Daily Proportion of Total	Cumulative Proportion of Total
September 1	242	12126	0.0042	0.2101
September 2	1024	13150	0.0177	0.2278
September 3	151	13301	0.0026	0.2304
September 4	551	13852	0.0095	0.2400
September 5	590	14442	0.0102	0.2502
September 6	473	14915	0.0082	0.2584
September 7	240	15155	0.0042	0.2625
September 8	1603	16758	0.0278	0.2903
September 9	668	17426	0.0116	0.3019
September 10	0	17426	0.0000	0.3019
September 11	0	17426	0.0000	0.3019
September 12	143	17569	0.0025	0.3044
September 13	698	18267	0.0121	0.3165
September 14	260	18527	0.0045	0.3210
September 15	20	18547	0.0003	0.3213
September 16	501	19048	0.0087	0.3300
September 17	1043	20091	0.0181	0.3481
September 18	912	21003	0.0158	0.3639
September 19	0	21003	0.0000	0.3639
September 20	2061	23064	0.0357	0.3996
September 21	8102	31166	0.1404	0.5399
September 22	12370	43536	0.2143	0.7542
September 23	115	43651	0.0020	0.7562
September 24	2683	46334	0.0465	0.8027
September 25	1673	48007	0.0290	0.8317
September 26	127	48134	0.0022	0.8339
September 27	63	48197	0.0011	0.8350
September 28	657	48854	0.0114	0.8463
September 29	1571	50425	0.0272	0.8736
September 30	167	50592	0.0029	0.8764
October 1	2231	52823	0.0386	0.9151
October 2	63	52886	0.0011	0.9162
October 3	35	52921	0.0006	0.9168
October 4	1145	54066	0.0198	0.9366
October 5	46	54112	0.0008	0.9374
October 6	1614	55726	0.0280	0.9654
October 7	0	55726	0.0000	0.9654
October 8	6	55732	0.0001	0.9655
October 9	58	55790	0.0010	0.9665
October 10	10	55800	0.0002	0.9667
October 11	208	56008	0.0036	0.9703
October 12	113	56121	0.0020	0.9722
October 13	87	56208	0.0015	0.9737
October 14	7	56215	0.0001	0.9739
October 15	8	56223	0.0001	0.9740
October 16	0	56223	0.0000	0.9740
October 17	0	56223	0.0000	0.9740
October 18	0	56223	0.0000	0.9740
October 19	0	56223	0.0000	0.9740
October 20	1	56224	0.0000	0.9740
October 21	0	56224	0.0000	0.9740
October 22	1500	57724	0.0260	1.0000
Mean Day of Migration = September 14			Variance = 438.13 Days squared	

Appendix Table 9. Daily sockeye salmon counts and associated statistics from Chilkoot Lake Weir, 1985.

Date	Daily Count	Cumulative Count	Daily Proportion of Total	Cumulative Proportion of Total
June 7	4	4	0.0001	0.0001
June 8	4	8	0.0001	0.0001
June 9	3	11	.0000	0.0002
June 10	0	11	0.0000	0.0002
June 11	0	11	0.0000	0.0002
June 12	0	11	0.0000	0.0002
June 13	1	12	.0000	0.0002
June 14	1	13	.0000	0.0002
June 15	1	14	.0000	0.0002
June 16	53	67	0.0008	0.0010
June 17	11	78	0.0002	0.0011
June 18	7	85	0.0001	0.0012
June 19	6	91	0.0001	0.0013
June 20	11	102	0.0002	0.0015
June 21	6	108	0.0001	0.0016
June 22	10	118	0.0001	0.0017
June 23	25	143	0.0004	0.0021
June 24	9	152	0.0001	0.0022
June 25	17	169	0.0002	0.0024
June 26	16	185	0.0002	0.0027
June 27	1	186	.0000	0.0027
June 28	101	287	0.0015	0.0042
June 29	4512	4799	0.0654	0.0695
June 30	457	5256	0.0066	0.0761
July 1	0	5256	0.0000	0.0761
July 2	10	5266	0.0001	0.0763
July 3	48	5314	0.0007	0.0770
July 4	86	5400	0.0012	0.0782
July 5	182	5582	0.0026	0.0809
July 6	0	5582	0.0000	0.0809
July 7	47	5629	0.0007	0.0815
July 8	75	5704	0.0011	0.0826
July 9	63	5767	0.0009	0.0835
July 10	74	5841	0.0011	0.0846
July 11	135	5976	0.0020	0.0866
July 12	58	6034	0.0008	0.0874
July 13	11	6045	0.0002	0.0876
July 14	66	6111	0.0010	0.0885
July 15	49	6160	0.0007	0.0892
July 16	126	6286	0.0018	0.0911
July 17	98	6384	0.0014	0.0925
July 18	167	6551	0.0024	0.0949
July 19	126	6677	0.0018	0.0967
July 20	178	6855	0.0026	0.0993
July 21	156	7011	0.0023	0.1016
July 22	432	7443	0.0063	0.1078
July 23	773	8216	0.0112	0.1190
July 24	176	8392	0.0025	0.1216
July 25	291	8683	0.0042	0.1258
July 26	1231	9914	0.0178	0.1436
July 27	542	10456	0.0079	0.1515
July 28	1325	11781	0.0192	0.1707
July 29	3120	14901	0.0452	0.2159
July 30	3817	18718	0.0553	0.2712
July 31	3552	22270	0.0515	0.3226
August 1	3120	25390	0.0452	0.3678
August 2	1202	26592	0.0174	0.3852
August 3	3642	30234	0.0528	0.4380
August 4	1158	31392	0.0168	0.4548
August 5	1403	32795	0.0203	0.4751
August 6	1622	34417	0.0235	0.4986
August 7	946	35363	0.0137	0.5123
August 8	1256	36619	0.0182	0.5305
August 9	1815	38434	0.0263	0.5568
August 10	1632	40066	0.0236	0.5804
August 11	2422	42488	0.0351	0.6155
August 12	1559	44047	0.0226	0.6381
August 13	1623	45670	0.0235	0.6616
August 14	1905	47575	0.0276	0.6892
August 15	1504	49079	0.0218	0.7110
August 16	2411	51490	0.0349	0.7460
August 17	1077	52567	0.0156	0.7616
August 18	807	53374	0.0117	0.7732
August 19	3207	56581	0.0465	0.8197
August 20	1055	57636	0.0153	0.8350
August 21	649	58285	0.0094	0.8444
August 22	439	58724	0.0064	0.8508
August 23	468	59192	0.0068	0.8575
August 24	388	59580	0.0056	0.8632
August 25	254	59834	0.0037	0.8668
August 26	702	60536	0.0102	0.8770
August 27	580	61116	0.0084	0.8854
August 28	1003	62119	0.0145	0.8999
August 29	881	63000	0.0128	0.9127
August 30	611	63611	0.0089	0.9216
August 31	401	64012	0.0058	0.9274

-Continued-

Appendix Table 9. Daily sockeye salmon counts and associated statistics from Chilkoot Lake Weir, 1985 (continued).

Date		Daily Count	Cumulative Count	Daily Proportion of Total	Cumulative Proportion of Total
September	1	312	64324	0.0045	0.9319
September	2	676	65000	0.0098	0.9417
September	3	658	65658	0.0095	0.9512
September	4	574	66232	0.0083	0.9595
September	5	238	66470	0.0034	0.9630
September	6	186	66656	0.0027	0.9657
September	7	173	66829	0.0025	0.9682
September	8	316	67145	0.0046	0.9727
September	9	356	67501	0.0052	0.9779
September	10	263	67764	0.0038	0.9817
September	11	320	68084	0.0046	0.9864
September	12	129	68213	0.0019	0.9882
September	13	103	68316	0.0015	0.9897
September	14	59	68375	0.0009	0.9906
September	15	127	68502	0.0018	0.9924
September	16	117	68619	0.0017	0.9941
September	17	105	68724	0.0015	0.9956
September	18	37	68761	0.0005	0.9962
September	19	20	68781	0.0003	0.9965
September	20	56	68837	0.0008	0.9973
September	21	18	68855	0.0003	0.9975
September	22	21	68876	0.0003	0.9978
September	23	17	68893	0.0002	0.9981
September	24	34	68927	0.0005	0.9986
September	25	20	68947	0.0003	0.9989
September	26	27	68974	0.0004	0.9992
September	27	13	68987	0.0002	0.9994
September	28	13	69000	0.0002	0.9996
September	29	2	69002	.0000	0.9997
September	30	6	69008	0.0001	0.9997
October	1	6	69014	0.0001	0.9998
October	2	5	69019	0.0001	0.9999
October	3	1	69020	.0000	0.9999
October	4	5	69025	0.0001	1.0000
October	5	1	69026	.0000	1.0000
Mean Day of Migration = August 7		Variance = 287.76 Days squared			

Appendix Table 10. Age composition of the Chilkat Lake sockeye salmon escapement, by sample period and sex, 1985.

Brood Year and Age Class										
	1982	1981		1980			1979			Total
	1.1	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	
Escapement Dates:	(June 29 - August 24)									
Sample Dates:	(July 18 - August 24)									
Male										
Sample Number	4	1	1	49	3		2	24		84
Percent	2.9	0.7	0.7	35.5	2.2		1.4	17.4		60.9
Std. Error	1.4			4.1	1.2		1.0	3.2		4.2
Number	216	54	54	2645	162		108	1296		4535
Female										
Sample Number		1		33	3		1	16		54
Percent		0.7		23.9	2.2		0.7	11.6		39.1
Std. Error				3.6	1.2			2.7		4.2
Number		54		1782	162		54	863		2915
All Fish										
Sample Number	4	2	1	82	6		3	40		138
Percent	2.9	1.4	0.7	59.4	4.3		2.2	29.0		100.0
Std. Error	1.4	1.0		4.2	1.7		1.2	3.9		
Number	216	108	54	4427	324		162	2159		7450
Escapement Dates:	(August 25 - September 14)									
Sample Dates:	(August 25 - September 12)									
Male										
Sample Number	4	1	8	18	45			55		131
Percent	2.1	0.5	4.1	9.3	23.2			28.4		67.5
Std. Error	1.0		1.4	2.1	3.0			3.2		3.4
Number	228	57	457	1029	2569			3140		7480
Female										
Sample Number			1	6	29			27		63
Percent			0.5	3.1	14.9			13.9		32.5
Std. Error				1.2	2.6			2.5		3.4
Number			57	342	1656			1542		3597
All Fish										
Sample Number	4	1	9	24	74			82		194
Percent	2.1	0.5	4.6	12.4	38.1			42.3		100.0
Std. Error	1.0		1.5	2.4	3.5			3.6		
Number	228	57	514	1371	4225			4682		11077
Escapement Dates:	(September 15 - 21)									
Sample Dates:	(September 16 - 21)									
Male										
Sample Number			19	1	95	1		62	3	181
Percent			5.0	0.3	25.0	0.3		16.3	0.8	47.6
Std. Error			1.1		2.2			1.9	0.5	2.6
Number			632	33	3160	33		2062	100	6020
Female										
Sample Number			1	2	110			86		199
Percent			0.3	0.5	28.9			22.6		52.4
Std. Error				0.4	2.3			2.1		2.6
Number			33	67	3659			2860		6619
All Fish										
Sample Number			20	3	205	1		148	3	380
Percent			5.3	0.8	53.9	0.3		38.9	0.8	100.0
Std. Error			1.1	0.5	2.6			2.5	0.5	
Number			665	100	6819	33		4922	100	12639

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Appendix Table 10. Age composition of the Chilkat Lake sockeye salmon escapement, by sample period and sex, 1985 (continued).

Brood Year and Age Class										
	1982	1981		1980			1979			
	1.1	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	Total
Escapement Dates:	(September 22 - 28)									
Sample Dates:	(September 23 - 27)									
Male										
Sample Number		3	11	1	60	1		75	1	152
Percent		1.1	3.9	0.4	21.2	0.4		26.5	0.4	53.7
Std. Error		0.6	1.2		2.4			2.6		3.0
Number		188	688	62	3748	63		4688	63	9500
Female										
Sample Number				3	68			60		131
Percent				1.1	24.0			21.2		46.3
Std. Error				0.6	2.5			2.4		3.0
Number				188	4250			3750		8188
All Fish										
Sample Number		3	11	4	128	1		135	1	283
Percent		1.1	3.9	1.4	45.2	0.4		47.7	0.4	100.0
Std. Error		0.6	1.2	0.7	3.0			3.0		
Number		188	688	250	7998	63		8438	63	17688
Escapement Dates:	(September 29 - October 22)									
Sample Dates:	(September 29 - October 14)									
Male										
Sample Number		1	3	7	49			99		159
Percent		0.3	0.9	2.1	14.5			29.4		47.2
Std. Error			0.5	0.8	1.9			2.5		2.7
Number		26	79	184	1290			2606		4185
Female										
Sample Number		2		3	67			104	2	178
Percent		0.6		0.9	19.9			30.9	0.6	52.8
Std. Error		0.4		0.5	2.2			2.5	0.4	2.7
Number		53		79	1763			2737	53	4685
All Fish										
Sample Number		3	3	10	116			203	2	337
Percent		0.9	0.9	3.0	34.4			60.2	0.6	100.0
Std. Error		0.5	0.5	0.9	2.6			2.7	0.4	
Number		79	79	263	3053			5343	53	8870
Combined Periods (Percentages are weighted by period escapements)										
Male										
Sample Number	8	6	42	76	252	2	2	315	4	707
Percent	0.8	0.6	3.3	6.8	18.9	0.2	0.2	23.9	0.3	55.0
Std. Error	0.3	0.2	0.5	0.7	1.1	0.1	0.1	1.2	0.1	1.4
Number	444	325	1910	3953	10929	96	108	13792	163	31720
Female										
Sample Number		3	2	47	277		1	293	2	625
Percent		0.2	0.2	4.3	19.9		0.1	20.4	0.1	45.0
Std. Error		0.1	0.1	0.6	1.1			1.1	0.1	1.4
Number		107	90	2458	11490		54	11752	53	26004
All Fish										
Sample Number	8	9	44	123	529	2	3	608	6	1332
Percent	0.8	0.7	3.5	11.1	38.8	0.2	0.3	44.3	0.4	100.0
Std. Error	0.3	0.3	0.5	0.8	1.3	0.1	0.2	1.4	0.2	
Number	444	432	2000	6411	22419	96	162	25544	216	57724

Appendix Table 11. Age composition of the Chilkoot Lake sockeye salmon escapement, by sample period and sex, 1985.

Brood Year and Age Class								
	1982	1981	1980		1979		1978	Total
	1.1	1.2	1.3	2.2	1.4	2.3	3.2	2.4
Escapement Dates: (June 7 - July 13)								
Sample Dates: (June 16 - July 11)								
Male								
Sample Number		5	42	1	5	29		82
Percent		3.8	32.1	0.8	3.8	22.1		62.6
Std. Error		1.7	4.1		1.7	3.6		4.2
Number		231	1938	46	231	1338		3784
Female								
Sample Number			30	1		18		49
Percent			22.9	0.8		13.7		37.4
Std. Error			3.7			3.0		4.2
Number			1384	46		831		2261
All Fish								
Sample Number		5	72	2	5	47		131
Percent		3.8	55.0	1.5	3.8	35.9		100.0
Std. Error		1.7	4.4	1.1	1.7	4.2		
Number		231	3322	92	231	2169		6045
Escapement Dates: (July 14 - 27)								
Sample Dates: (July 16 - 27)								
Male								
Sample Number		19	51	5		15		90
Percent		13.0	34.9	3.4		10.3		61.6
Std. Error		2.8	4.0	1.5		2.5		4.0
Number		574	1541	151		453		2719
Female								
Sample Number		2	39		3	12		56
Percent		1.4	26.7		2.1	8.2		38.4
Std. Error		1.0	3.7		1.2	2.3		4.0
Number		60	1178		91	363		1692
All Fish								
Sample Number		21	90	5	3	27		146
Percent		14.4	61.6	3.4	2.1	18.5		100.0
Std. Error		2.9	4.0	1.5	1.2	3.2		
Number		634	2719	151	91	816		4411
Escapement Dates: (July 28 - August 3)								
Sample Dates: (July 28 - August 2)								
Male								
Sample Number	1	51	171	6	7	21		259
Percent	0.2	12.0	40.1	1.4	1.6	4.9	0.5	60.8
Std. Error		1.6	2.4	0.6	0.6	1.1	0.3	2.4
Number	47	2379	7975	280	326	979	93	12079
Female								
Sample Number		4	131	1	3	28		167
Percent		0.9	30.8	0.2	0.7	6.6		39.2
Std. Error		0.5	2.2		0.4	1.2		2.4
Number		187	6110	46	140	1306		7789
All Fish								
Sample Number	1	55	302	7	10	49	2	426
Percent	0.2	12.9	70.9	1.6	2.3	11.5	0.5	100.0
Std. Error		1.6	2.2	0.6	0.7	1.5	0.3	
Number	47	2566	14085	326	466	2285	93	19868
Escapement Dates: (August 4 - 10)								
Sample Dates: (August 4 - 10)								
Male								
Sample Number		30	80	8	5	20		143
Percent		12.8	34.0	3.4	2.1	8.5		60.9
Std. Error		2.2	3.1	1.2	0.9	1.8		3.2
Number		1244	3316	332	207	829		5928
Female								
Sample Number		2	73	2	2	13		92
Percent		0.9	31.1	0.9	0.9	5.5		39.1
Std. Error		0.6	3.0	0.6	0.6	1.5		3.2
Number		83	3026	83	83	539		3814
All Fish								
Sample Number		32	153	10	7	33		235
Percent		13.6	65.1	4.3	3.0	14.0		100.0
Std. Error		2.2	3.1	1.3	1.1	2.3		
Number		1327	6342	415	290	1368		9742

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Appendix Table 11. Age composition of the Chilkoot Lake sockeye salmon escapement, by sample period and sex, 1985 (continued).

Brood Year and Age Class								
	1982	1981	1980		1979		1978	Total
	1.1	1.2	1.3	2.2	1.4	2.3	3.2	2.4
Escapement Dates: (August 11 - 17)								
Sample Dates: (August 11 - 17)								
Male								
Sample Number		33	128	10	5	34		210
Percent		10.1	39.1	3.1	1.5	10.4		64.2
Std. Error		1.7	2.7	1.0	0.7	1.7		2.7
Number		1262	4893	382	191	1300		8028
Female								
Sample Number		1	94		3	18		117
Percent		0.3	28.7		0.9	5.5		35.8
Std. Error			2.5		0.5	1.3		2.7
Number		38	3594		115	688		4473
All Fish								
Sample Number		34	222	10	8	52		327
Percent		10.4	67.9	3.1	2.4	15.9		100.0
Std. Error		1.7	2.6	1.0	0.9	2.0		
Number		1300	8487	382	306	1988		12501
Escapement Dates: (August 18 - 24)								
Sample Dates: (August 18 - 24)								
Male								
Sample Number		24	46	4	2	11	1	89
Percent		15.6	29.9	2.6	1.3	7.1	0.6	57.8
Std. Error		2.9	3.7	1.3	0.9	2.1		4.0
Number		1093	2095	182	91	500	46	4053
Female								
Sample Number		3	46	2		14		65
Percent		1.9	29.9	1.3		9.1		42.2
Std. Error		1.1	3.7	0.9		2.3		4.0
Number		137	2094	91		638		2960
All Fish								
Sample Number		27	92	6	2	25	1	154
Percent		17.5	59.7	3.9	1.3	16.2	0.6	100.0
Std. Error		3.1	4.0	1.6	0.9	3.0		
Number		1230	4189	273	91	1138	46	7013
Escapement Dates: (August 25 - October 5)								
Sample Dates: (August 25 - September 12)								
Male								
Sample Number		20	80	2	1	13		117
Percent		9.9	39.4	1.0	0.5	6.4		57.6
Std. Error		2.1	3.4	0.7		1.7		3.5
Number		930	3722	93	47	605		5444
Female								
Sample Number		3	67	1	3	12		86
Percent		1.5	33.0	0.5	1.5	5.9		42.4
Std. Error		0.8	3.3		0.8	1.7		3.5
Number		140	3118	47	139	558		4002
All Fish								
Sample Number		23	147	3	4	25		203
Percent		11.3	72.4	1.5	2.0	12.3		100.0
Std. Error		2.2	3.1	0.8	1.0	2.3		
Number		1070	6840	140	186	1163		9446
Combined Periods (Percentages are weighted by period escapements)								
Male								
Sample Number		1	182	36	25	143	1	990
Percent	0.1	11.2	36.9	2.1	1.6	8.7	0.1	60.9
Std. Error		0.8	1.2	0.4	0.3	0.7		1.2
Number	47	7713	25480	1466	1093	6004	46	42035
Female								
Sample Number		15	480	7	14	115		632
Percent		0.9	29.7	0.5	0.8	7.1		39.1
Std. Error		0.2	1.1	0.2	0.2	0.6		1.2
Number		645	20504	313	568	4923		26991
All Fish								
Sample Number		1	197	43	39	258	1	1622
Percent	0.1	12.1	66.6	2.6	2.4	15.8	0.1	100.0
Std. Error		0.8	1.2	0.4	0.4	0.9		
Number	47	8358	45984	1779	1661	10927	46	69026

Appendix Table 12. Age composition of the Chilkat River Mainstem escapement of sockeye salmon, by sex, 1985.

Brood Year and Age Class							
	1982	1981	1980		1979		Total
	0.2	0.3	1.3	2.2	1.4	2.3	
Sample Dates: (October 2)							
Male							
Sample Number	15	19	19				53
Percent	14.4	18.3	18.3				51.0
Std. Error	3.5	3.8	3.8				4.9
Female							
Sample Number	5	28	16	1		1	51
Percent	4.8	26.9	15.4	1.0		1.0	49.0
Std. Error	2.1	4.4	3.6				4.9
All Fish 1/							
Sample Number	20	58	54	2	1	1	136
Percent	14.7	42.6	39.7	1.5	0.7	0.7	100.0
Std. Error	3.0	4.3	4.2	1.0			

1/ Includes unsexed fish totals.

Appendix Table 13. Age composition of the Lace River escapement of sockeye salmon, by sex, 1985.

Brood Year and Age Class									
	1983	1982		1981		1980			Total
	0.1	0.2	1.1	0.3	1.2	0.4	1.3	2.2	
Sample Dates: (August 24)									
Male									
Sample Number	3	6	4	1	5	1	12		32
Percent	3.8	7.5	5.0	1.3	6.3	1.3	15.0		40.0
Std. Error	2.1	3.0	2.5		2.7		4.0		5.5
Female									
Sample Number		3		3	5		37		48
Percent		3.8		3.8	6.3		46.3		60.0
Std. Error		2.1		2.1	2.7		5.6		5.5
All Fish 1/									
Sample Number	3	9	4	4	10	1	52	1	84
Percent	3.6	10.7	4.8	4.8	11.9	1.2	61.9	1.2	100.0
Std. Error	2.0	3.4	2.3	2.3	3.6		5.3		

1/ Includes unsexed fish totals.

Appendix Table 14. Length composition of the Lynn Canal gillnet catch of Chilkoot Lake sockeye salmon by sex, age class, and fishing period, 1985.

		Brood Year and Age Class									
		1982		1981		1980		1979		1978	
		1.1	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3
Statistical Week 25 (June 16 - 22)											
Male	Avg. Length				587.1		587.5	621.7		635.0	
	Std. Error				4.2		17.5	19.2			
	Sample Size				21		2	3		1	
Female	Avg. Length				565.0			567.1			
	Std. Error				4.9			7.7			
	Sample Size				12			7			
All Fish	Avg. Length				579.1		587.5	583.5		635.0	
	Std. Error				3.7		17.5	11.0			
	Sample Size				33		2	10		1	
Statistical Week 26 (June 23 - 29)											
Male	Avg. Length		504.0	570.0	588.1		619.4	585.5			
	Std. Error		15.3		2.4		10.3	4.8			
	Sample Size		5	1	98		8	37			
Female	Avg. Length		521.7		575.3	500.0	602.5	568.6		580.0	
	Std. Error		8.3		2.5		17.1	3.4			
	Sample Size		3		76	1	6	21			1
All Fish 1/	Avg. Length		506.7	570.0	582.3	500.0	611.4	576.3		595.0	
	Std. Error		9.7		1.6		7.5	2.8		15.0	
	Sample Size		9	1	209	1	18	83		2	
Statistical Week 27 (June 30 - July 6)											
Male	Avg. Length		532.5		579.9		605.0	591.1			
	Std. Error		2.5		3.4		55.0	7.4			
	Sample Size		2		63		2	9			
Female	Avg. Length				563.7		592.5	572.4			
	Std. Error				3.1		7.5	4.5			
	Sample Size				58		2	17			
All Fish 1/	Avg. Length		513.3		572.8		607.5	577.3			
	Std. Error		19.2		1.9		15.6	3.3			
	Sample Size		3		164		6	41			
Statistical Week 28 (July 7 - 13)											
Male	Avg. Length		501.7		579.2	487.5	602.5	577.0			
	Std. Error		16.0		2.2	2.5	5.2	3.4			
	Sample Size		6		117	2	4	22			
Female	Avg. Length				562.2	520.0	592.5	563.3			
	Std. Error				2.3		6.6	3.9			
	Sample Size				83	1	4	27			
All Fish	Avg. Length		501.7		572.1	498.3	597.5	569.5			
	Std. Error		16.0		1.7	10.9	4.3	2.8			
	Sample Size		6		200	3	8	49			
Statistical Week 29 (July 14 - 20)											
Male	Avg. Length		498.9		577.8	495.0	616.0	570.4			
	Std. Error		9.8		2.1	27.8	14.3	7.7			
	Sample Size		9		87	3	5	12			
Female	Avg. Length	310.0	500.0		559.0	450.0		550.4			
	Std. Error		2.9		1.9			6.1			
	Sample Size	2	3		92	1		14			
All Fish	Avg. Length	310.0	499.2		568.1	483.8	616.0	559.6			
	Std. Error		7.3		1.6	22.7	14.3	5.2			
	Sample Size	2	12		179	4	5	26			

-Continued-

Appendix Table 14. Length composition of the Lynn Canal gillnet catch of Chilkoot Lake sockeye salmon by sex, age class, and fishing period, 1985 (continued).

		Brood Year and Age Class									
		1982		1981		1980		1979		1978	
		1.1	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3
Statistical Week 30 (July 21 - 27)											
Male	Avg. Length		522.0		575.5	550.0	603.3	579.1		585.0	
	Std. Error		8.3		1.8	35.0	10.5	5.6			
	Sample Size		5		123	2	6	16			1
Female	Avg. Length		525.0		565.0		595.0	571.2		540.0	
	Std. Error		22.8		1.8		20.0	5.9			
	Sample Size		4		112		2	13		1	
All Fish	Avg. Length		523.3		570.5	550.0	601.3	575.5		540.0	585.0
	Std. Error		10.3		1.3	35.0	8.6	4.0			
	Sample Size		9		235	2	8	29		1	1
Statistical Week 31 (July 28 - August 3)											
Male	Avg. Length	305.0	504.5		574.5	503.3	588.8	565.7			
	Std. Error		3.6		2.1	4.4	16.4	5.0			
	Sample Size	1	11		124	3	4	30			
Female	Avg. Length		487.5		562.7		583.8	562.7			
	Std. Error		29.2		1.6		10.3	3.0			
	Sample Size		4		118		4	35			
All Fish	Avg. Length	305.0	500.0		568.7	503.3	586.3	564.1			
	Std. Error		7.7		1.4	4.4	9.0	2.8			
	Sample Size	1	15		242	3	8	65			
Statistical Week 32 (August 4 - 10)											
Male	Avg. Length		508.5		575.6	484.0	600.0	571.9			
	Std. Error		6.9		1.3	17.0	9.3	3.6			
	Sample Size		26		342	5	6	48			
Female	Avg. Length		501.4		563.3		565.0	563.1		590.0	
	Std. Error		9.0		1.0		50.0	2.8		40.0	
	Sample Size		11		335		2	42		2	
All Fish	Avg. Length		506.4		569.5	484.0	591.3	567.8		590.0	
	Std. Error		5.5		0.8	17.0	13.0	2.4		40.0	
	Sample Size		37		677	5	8	90		2	
Statistical Week 33 (August 11 - 17)											
Male	Avg. Length		512.7		583.8	520.0	591.3	577.3			
	Std. Error		4.4		1.3		11.3	3.9			
	Sample Size		13		259	1	4	39			
Female	Avg. Length		527.9		571.4	510.0	597.5	571.3			
	Std. Error		10.9		1.2		17.5	5.2			
	Sample Size		7		253	1	2	34			
All Fish	Avg. Length		518.0		577.7	515.0	593.3	574.5			
	Std. Error		4.9		0.9	5.0	8.5	3.2			
	Sample Size		20		512	2	6	73			
Statistical Week 34 (August 18 - 24)											
Male	Avg. Length		505.4		580.5	508.3	605.6	574.9			
	Std. Error		5.2		1.2	4.4	9.4	4.2			
	Sample Size		34		312	3	8	40			
Female	Avg. Length		495.6		567.4	506.7	596.0	572.0			
	Std. Error		5.5		1.4	6.7	9.9	3.7			
	Sample Size		17		254	3	5	37			
All Fish	Avg. Length		502.2		574.6	507.5	601.9	573.5			
	Std. Error		4.0		1.0	3.6	6.8	2.8			
	Sample Size		51		567	6	13	77			

-Continued-

Appendix Table 14. Length composition of the Lynn Canal gillnet catch of Chilkoot Lake sockeye salmon by sex, age class, and fishing period, 1985 (continued).

		Brood Year and Age Class									
		1982	1981		1980		1979			1978	
		1.1	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3
Statistical Week	35 (August 25 - 31)										
Male	Avg. Length		507.7		583.0	511.0	620.0	586.9			
	Std. Error		7.8		2.4	4.3		5.4			
	Sample Size		15		90	5	1	13			
Female	Avg. Length		503.3		571.4		585.0	569.4			
	Std. Error		7.9		2.0			5.7			
	Sample Size		6		85		1	17			
All Fish	Avg. Length		506.4		577.3	511.0	602.5	577.0			
	Std. Error		5.9		1.6	4.3	17.5	4.2			
	Sample Size		21		175	5	2	30			
Statistical Week	36 (Sept. 1 - 7)										
Male	Avg. Length		515.8		586.1	526.7	625.0	583.8		645.0	
	Std. Error		11.4		1.8	4.4	8.0	4.1			
	Sample Size		6		163	3	6	21		1	
Female	Avg. Length		499.0		573.3	500.0	605.0	574.0		620.0	
	Std. Error		5.6		1.8	5.0	10.0	4.5			
	Sample Size		5		124	2	2	21		1	
All Fish	Avg. Length		508.2		580.6	516.0	620.0	578.9		632.5	
	Std. Error		6.9		1.3	7.1	6.9	3.1		12.5	
	Sample Size		11		287	5	8	42		2	
Statistical Week	37 (Sept. 8 - 14)										
Male	Avg. Length		490.0		593.3		605.0	579.2	530.0		
	Std. Error		35.0		2.5			10.3			
	Sample Size		2		66		1	6	1		
Female	Avg. Length		521.7		579.4			581.1			
	Std. Error		9.3		3.3			5.8			
	Sample Size		3		41			9			
All Fish	Avg. Length		509.0		588.0		605.0	580.3	530.0		
	Std. Error		14.4		2.1			5.2			
	Sample Size		5		107		1	15	1		
Statistical Weeks	38 - 42 (Sept. 15 - 21) Sept. 8 - 14										
Male	Avg. Length		440.0		592.0			592.9			
	Std. Error				4.0			3.8			
	Sample Size		1		20			7			
Female	Avg. Length				585.4		655.0	559.0			
	Std. Error				7.3			3.2			
	Sample Size				8		1	3			
All Fish	Avg. Length		440.0		590.1		655.0	582.7			
	Std. Error				3.5			5.8			
	Sample Size		1		28		1	10			
Combined Periods (Unweighted)											
Male	Avg. Length	305.0	507.0	570.0	580.8	506.3	606.8	577.9	530.0	640.0	585.0
	Std. Error		2.5		0.5	5.7	3.6	1.5		5.0	
	Sample Size	1	135	1	1885	27	57	303	1	2	1
Female	Avg. Length	310.0	505.2		567.2	500.0	595.2	567.5		585.0	580.0
	Std. Error	<0.1	3.7		0.5	6.9	5.3	1.3		23.3	
	Sample Size	2	63		1651	9	31	297		4	1
All Fish 1/	Avg. Length	308.3	506.1	570.0	574.5	504.7	603.5	572.7	530.0	603.3	591.7
	Std. Error	1.7	2.1		0.4	4.6	2.9	0.9		18.8	9.3
	Sample Size	3	200	1	3615	36	94	640	1	6	3

1/ Includes unsexed fish totals.

Appendix Table 15. Length composition of the Lynn Canal gillnet catch of Chilkat Lake sockeye salmon, by sex, age class, and fishing period, 1985.

		Brood Year and Age Class							
		1981		1980		1979		1978	
		1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4 3.3
Statistical Week	25 (June 16 - 22)								
Male	Avg. Length			597.5		580.0			
	Std. Error			4.9		23.9			
	Sample Size			14		4			
Female	Avg. Length	495.0		571.2		565.0			
	Std. Error			6.0					
	Sample Size	1		13		1			
All Fish	Avg. Length	495.0		584.8		577.0			
	Std. Error			4.6		18.7			
	Sample Size	1		27		5			
Statistical Week	26 (June 23 - 29)								
Male	Avg. Length	525.0		599.8	540.0	637.5	588.9		
	Std. Error			3.0		4.3	7.1		
	Sample Size	1		52	1	4	18		
Female	Avg. Length	517.5		579.1			578.6		
	Std. Error	7.5		2.6			4.7		
	Sample Size	2		85			28		
All Fish 1/Avg. Length		520.0		586.9	540.0	637.5	583.5		
	Std. Error	5.0		1.9		4.3	3.9		
	Sample Size	3		171	1	4	55		
Statistical Week	27 (June 30 - July 6)								
Male	Avg. Length	485.0		590.5	540.0		600.0		
	Std. Error			3.7			11.2		
	Sample Size	1		28	1		13		
Female	Avg. Length			589.0	490.0		583.2		
	Std. Error			2.9			5.1		
	Sample Size			31	1		25		
All Fish 1/Avg. Length		485.0		586.3	525.0	635.0	586.6		
	Std. Error			2.5	17.6		4.8		
	Sample Size	1		81	3	1	51		
Statistical Week	28 (July 7 - 13)								
Male	Avg. Length	520.0		595.4	565.8	635.0	600.0	612.5	565.0
	Std. Error			3.4	12.6	5.0	3.8	7.5	
	Sample Size	1		52	6	2	37	2	1
Female	Avg. Length			579.8	516.5	600.0	580.7		
	Std. Error			3.0	8.5	15.0	3.4		
	Sample Size			47	2	2	59		
All Fish	Avg. Length	520.0		588.0	553.5	617.5	588.2	612.5	565.0
	Std. Error			2.4	12.4	12.0	2.7	7.5	
	Sample Size	1		99	8	4	96	2	1
Statistical Week	29 (July 14 - 20)								
Male	Avg. Length	495.0		593.1	555.8	618.8	601.6		
	Std. Error	20.0		2.2	9.3	8.5	3.7		
	Sample Size	3		104	6	4	60		
Female	Avg. Length	515.0		578.9	520.0	603.3	579.3	600.0	
	Std. Error	15.0		1.8	5.0	7.3	2.0		
	Sample Size	2		131	2	3	82	1	
All Fish	Avg. Length	503.0		585.2	546.9	612.1	588.7	600.0	
	Std. Error	12.9		1.5	9.0	6.2	2.1		
	Sample Size	5		235	8	7	142	1	

-Continued-

Appendix Table 15. Length composition of the Lynn Canal gillnet catch of Chilkat Lake sockeye salmon, by sex, age class, and fishing period, 1985 (continued).

		Brood Year and Age Class							
		1981		1980		1979		1978	
		1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4 3.3
Statistical Week 30 (July 21 - 27)									
Male	Avg. Length	450.0		593.1	555.0	631.7	599.7		
	Std. Error			2.9	10.0	7.3	5.2		
	Sample Size	1		60	3	3	19		
Female	Avg. Length	485.0		580.6	542.5	632.5	583.6		
	Std. Error			3.1	4.8	12.5	4.6		
	Sample Size	1		53	4	2	22		
All Fish	Avg. Length	467.5		587.2	547.9	632.0	591.1		
	Std. Error	17.5		2.2	5.2	5.6	3.6		
	Sample Size	2		113	7	5	41		
Statistical Week 31 (July 28 - August 3)									
Male	Avg. Length			599.8	534.5	610.0	604.1		
	Std. Error			3.7	5.4		3.3		
	Sample Size			32	11	1	38		
Female	Avg. Length	535.0		579.6	540.0	605.0	588.9		
	Std. Error			2.6	10.0		3.3		
	Sample Size	1		34	2	1	37		
All Fish	Avg. Length	535.0		589.4	535.4	607.5	596.6		
	Std. Error			2.6	4.7	2.5	2.5		
	Sample Size	1		66	13	2	75		
Statistical Week 32 (August 4 - 10)									
Male	Avg. Length	522.5		596.4	551.3	615.0	599.7		
	Std. Error	22.5		3.8	4.5		2.6		
	Sample Size	2		36	23	1	80		
Female	Avg. Length	535.0		578.2	524.6	590.0	585.7		
	Std. Error			2.3	11.6		2.1		
	Sample Size	1		46	13	1	110		
All Fish	Avg. Length	526.7		586.2	541.7	602.5	591.6		
	Std. Error	13.6		2.3	5.4	12.5	1.7		
	Sample Size	3		82	36	2	190		
Statistical Week 33 (August 11 - 17)									
Male	Avg. Length			609.8	544.3		603.3		
	Std. Error			4.8	5.0		2.3		
	Sample Size			20	42		110		
Female	Avg. Length			570.4	526.1		590.4		
	Std. Error			7.7	8.1		1.7		
	Sample Size			14	14		140		
All Fish	Avg. Length			593.5	539.7		596.1		
	Std. Error			5.4	4.4		1.4		
	Sample Size			34	56		250		
Statistical Week 34 (August 18 - 24)									
Male	Avg. Length			594.1	542.4		600.1	540.0	
	Std. Error			7.3	3.2		2.5		
	Sample Size			11	52		113	1	
Female	Avg. Length	550.0		583.1	531.4		584.1	540.0	
	Std. Error			7.5	3.3		1.8		
	Sample Size	1		8	38		157	1	
All Fish	Avg. Length	550.0		589.5	537.8		590.8	540.0	
	Std. Error			5.3	2.4		1.5		
	Sample Size	1		19	90		270	2	

-Continued-

Appendix Table 15. Length composition of the Lynn Canal gillnet catch of Chilkat Lake sockeye salmon, by sex, age class, and fishing period, 1985 (continued).

		Brood Year and Age Class								
		1981		1980		1979			1978	
		1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3
Statistical Week 35 (August 25 - 31)										
Male	Avg. Length	555.0		596.7	546.3		605.9	557.5		
	Std. Error			6.6	2.0		1.8	27.5		
	Sample Size	1		9	91		213	2		
Female	Avg. Length	535.0		592.0	531.4		589.2			
	Std. Error	20.0		6.2	2.8		1.3			
	Sample Size	2		10	73		280			
All Fish	Avg. Length	541.7		594.2	539.6		596.4	557.5		
	Std. Error	13.3		4.4	1.8		1.1	27.5		
	Sample Size	3		19	164		493	2		
Statistical Week 36 (Sept. 1 - 7)										
Male	Avg. Length	495.0		603.1	550.6		614.2	587.5		
	Std. Error			4.7	3.1		1.5	2.5		
	Sample Size	1		13	89		246	2		
Female	Avg. Length	535.0		586.1	537.4		591.1	535.0		
	Std. Error			7.5	2.4		1.6			
	Sample Size	1		9	64		181	1		
All Fish	Avg. Length	515.0		596.1	545.1		604.4	570.0		
	Std. Error	20.0		4.4	2.1		1.2	17.6		
	Sample Size	2		22	153		427	3		
Statistical Week 37 (Sept. 8 - 14)										
Male	Avg. Length		370.0	605.5	552.0		618.5	560.0		
	Std. Error			5.2	3.5		1.2	11.5		
	Sample Size		1	11	70		405	3		
Female	Avg. Length			592.0	534.8		597.6			
	Std. Error			7.7	3.2		1.5			
	Sample Size			5	44		212			
All Fish	Avg. Length		370.0	601.3	545.4		611.3	560.0		
	Std. Error			4.5	2.6		1.0	11.5		
	Sample Size		1	16	114		617	3		
Statistical Weeks 38 - 42 (Sept. 15 - 21) Sept. 8 - 14										
Male	Avg. Length			603.3	559.1		616.2			
	Std. Error			20.3	7.6		1.7			
	Sample Size			3	16		112			
Female	Avg. Length			585.0	538.8		599.4			
	Std. Error				6.5		2.4			
	Sample Size			1	10		90			
All Fish	Avg. Length			598.8	551.3		608.7			
	Std. Error			15.1	5.6		1.5			
	Sample Size			4	26		202			
Combined Periods (Unweighted)										
Male	Avg. Length	505.5	370.0	596.4	548.4	627.7	609.8	563.8	612.5	565.0
	Std. Error	10.0		1.1	1.3	3.6	0.7	8.6	7.5	
	Sample Size	11	1	445	411	15	1468	8	2	1
Female	Avg. Length	522.5		580.0	532.9	607.8	589.3	537.5	600.0	
	Std. Error	6.3		0.9	1.4	6.2	0.6	2.5		
	Sample Size	12		487	267	9	1424	2	1	
All Fish 1/	Avg. Length	514.3	370.0	587.5	542.3	620.8	599.6	558.5	608.3	565.0
	Std. Error	5.9		0.7	1.0	3.7	0.5	7.6	6.0	
	Sample Size	23	1	988	679	25	2914	10	3	1

1/ Includes unsexed fish totals.

Appendix Table 16. Length composition of the Lynn Canal gillnet catch of Berners Bay/
Chilkat Mainstem sockeye salmon by sex, age class, and fishing
period, 1985.

			Brood Year and Age Class						
			1982	1981		1980		1979	
			0.2	0.3	1.2	0.4	1.3	1.4	2.3
Statistical Week	25	(June 16 - 22)							
Male	Avg. Length						586.1		
	Std. Error						5.8		
	Sample Size						9		
Female	Avg. Length			580.0			569.3		
	Std. Error			5.0			8.7		
	Sample Size			2			7		
All Fish	Avg. Length			580.0			578.8		
	Std. Error			5.0			5.3		
	Sample Size			2			16		
Statistical Week	26	(June 23 - 29)							
Male	Avg. Length		473.3	582.5	498.3		588.4		
	Std. Error		16.7	5.1	21.3		2.6		
	Sample Size		3	16	3		108		
Female	Avg. Length		520.0	556.0		550.0	569.9	625.0	565.0
	Std. Error			4.3			2.7		
	Sample Size		1	10		1	72	1	1
All Fish	1/Avg. Length		485.0	571.5	502.5	550.0	578.8	608.3	565.0
	Std. Error		16.6	4.2	15.6		1.7	14.2	
	Sample Size		4	30	4	1	235	3	1
Statistical Week	27	(June 30 - July 6)							
Male	Avg. Length		485.0	587.9	517.5		593.6		590.0
	Std. Error		11.9	4.6	9.2		2.0		20.2
	Sample Size		4	14	10		144		3
Female	Avg. Length		553.8	563.3			572.1		
	Std. Error		29.8	5.4			1.9		
	Sample Size		4	15			138		
All Fish	1/Avg. Length		511.7	569.8	510.0		580.0		580.0
	Std. Error		19.0	3.7	9.1		1.3		17.4
	Sample Size		9	42	12		377		4
Statistical Week	28	(July 7 - 13)							
Male	Avg. Length		508.3	574.5	513.3	580.0	578.8		567.5
	Std. Error		29.5	5.2	21.3	8.9	2.0		22.5
	Sample Size		3	11	6	4	153		2
Female	Avg. Length		495.0	564.3	516.7		564.1	590.0	557.5
	Std. Error			7.5	15.9		2.2		2.5
	Sample Size		1	14	3		104	1	2
All Fish	Avg. Length		505.0	568.8	514.4	580.0	572.9	590.0	562.5
	Std. Error		21.1	4.8	14.5	8.9	1.6		9.7
	Sample Size		4	25	9	4	257	1	4
Statistical Week	29	(July 14 - 20)							
Male	Avg. Length			578.8	425.0		584.2	565.0	
	Std. Error			10.9			6.3		
	Sample Size			4	1		18	1	
Female	Avg. Length		400.0	571.3			572.9	460.0	
	Std. Error			3.8			6.1		
	Sample Size		1	12			21	1	
All Fish	Avg. Length		400.0	573.1	425.0		578.1	512.5	
	Std. Error			3.8			4.4	52.5	
	Sample Size		1	16	1		39	2	
Statistical Week	30	(July 21 - 27)							
Male	Avg. Length		465.0	577.5			579.1		585.0
	Std. Error		20.0	8.2			10.6		
	Sample Size		2	6			11		1
Female	Avg. Length		505.0	570.9			569.0		
	Std. Error			4.7			5.9		
	Sample Size		1	11			15		
All Fish	Avg. Length		478.3	573.2			573.3		585.0
	Std. Error		17.6	4.1			5.6		
	Sample Size		3	17			26		1

-Continued-

Appendix Table 16. Length composition of the Lynn Canal gillnet catch of Berners Bay/
Chilkat Mainstem sockeye salmon by sex, age class, and fishing
period, 1985 (continued).

		Brood Year and Age Class						
		1982	1981		1980		1979	
		0.2	0.3	1.2	0.4	1.3	1.4	2.3
Statistical Week 31 (July 28 - August 3)								
Male	Avg. Length		575.0			592.8		
	Std. Error					7.8		
	Sample Size		1			9		
Female	Avg. Length		570.8	480.0		576.7		
	Std. Error		3.7			4.9		
	Sample Size		6	1		6		
All Fish	Avg. Length		571.4	480.0		586.3		
	Std. Error		3.2			5.4		
	Sample Size		7	1		15		
Statistical Week 32 (August 4 - 10)								
Male	Avg. Length		576.3	490.0		592.2		
	Std. Error		5.2			8.9		
	Sample Size		4	1		9		
Female	Avg. Length		568.3			570.6		
	Std. Error		6.0			5.2		
	Sample Size		3			9		
All Fish	Avg. Length		572.9	490.0		581.4		
	Std. Error		3.9			5.7		
	Sample Size		7	1		18		
Statistical Week 33 (August 11 - 17)								
Male	Avg. Length	525.0	582.5			589.1		
	Std. Error		2.5			10.6		
	Sample Size	1	2			11		
Female	Avg. Length		567.5			570.0		
	Std. Error		9.5			7.9		
	Sample Size		4			5		
All Fish	Avg. Length	525.0	572.5			583.1		
	Std. Error		6.8			7.9		
	Sample Size	1	6			16		
Combined Periods (Unweighted)								
Male	Avg. Length	487.7	580.9	507.9	580.0	586.6	565.0	581.7
	Std. Error	9.4	2.4	8.8	8.9	1.2		11.7
	Sample Size	13	58	21	4	472	1	6
Female	Avg. Length	516.9	566.3	507.5	550.0	569.3	558.3	560.0
	Std. Error	23.3	2.1	14.5		1.2	50.2	2.9
	Sample Size	8	77	4	1	377	3	3
All Fish 1/	Avg. Length	496.6	571.2	505.5	574.0	577.8	573.3	572.0
	Std. Error	10.5	1.7	7.0	9.1	0.8	24.6	7.9
	Sample Size	22	152	28	5	999	6	10

1/ Includes unsexed fish totals.

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